New York, Saturday, October 4, 1924

Electric Railway Journal

Consolidation of Street Railway Journal and Electric Railway Review

Published by McGraw-Hill Company, Inc.

HENRY W. BLAKE and HARRY L. BROWN, *Editors*

Volume 64
Number 14

Shall We Rattle On or Meet the Challenge?

THE committee on foreign operation of the American Electric Railway Association came back from Europe with the observation that the tramcars over there are less noisy than ours. In explanation of this a number of contributing reasons were given in the report published in ELECTRIC RAILWAY JOURNAL of September 20, but the committee felt that, simmered down to the main factor, this fault was simply a matter of maintenance. Cars and track, the committeemen said, are better maintained than is the case here. Bad joints and noisy special work are exceedingly rare. Cars are kept tight and free from rattling and vibrating parts.

If this is the principal means of reducing the noise of street cars, is there any reason why we cannot have the same thoroughness of maintenance in this country? And with the street car under fire in the popular mind as a noisy, obsolete vehicle, should we not accept the challenge upon our workmanship made by the showing of our British contemporaries and bring our maintenance practices up to new standards?

One prominent superintendent of equipment in the Middle West, writing to the editors about this subject, said that "the principal reason why the noise exists universally in car equipment today is laziness pure and simple." There is some of that element in the situation, but it goes much deeper. Neither the way engineers nor the master mechanics have been given a fair opportunity to attain a high standard of repair on most properties. There have been in our industry far too few managers who have taken sufficient pride in keeping their plant in first class condition to insist upon the proper expenditures and reserves for maintenance, regardless of the ups and downs of business. Too many have succumbed to the temptation to show profits by skimping maintenance, when for the year there would not otherwise have been any profits. The engineers of way and the master mechanics have been forced to make the most of an ever too scant allowance for repairs and renewals. Way engineers especially have seldom come into their own. The resulting accumulation and excess of broken joints, and broken and worn special trackwork, have only served to increase the wear and tear on the equipment and to further shorten a maintenance allowance already too scant.

We need better inspection and more thorough maintenance in America. With that attained much improvement in quietness of operation will follow. Yet we need not stop there. With American genius set to work at the task, we can certainly devise ways of eliminating the sources of noise or at least of muffling it. This is a part of modernization.

Definite effort in this direction has been exercised only in Minneapolis, so far as the JOURNAL knows. Whether the accomplishment in this case, in its present stage, is of great consequence or not, considerable credit should be given for the start made to overcome one of the most important factors in the general unpopularity of street cars. The brains and the energy to cast aside precedent and designs of decades ago and to start afresh with new ideas are certainly in the industry. Will not the executives give them backing or start the fight against noise?

Modernization a Matter of Determination

MUCH of the effort of the American Electric Railway Association during the past year has been devoted to the topic, "Modernization." The JOURNAL has always been the advocate of improvement and the adoption of more modern methods. Mr. McGraw stood out, for example, in the old days for his advocacy of electrification of the horse car lines—and was roundly criticised, incidentally, by many of the leaders of the industry of that day. The recent movement was crystallized into a motto by President Budd in an article in this paper on Jan. 6, 1923, and since then "modernization" has been the keynote of many of the industry's activities.

In order to give the movement a further impetus the entire Annual Convention Number of ELECTRIC RAILWAY JOURNAL, published last week, was devoted to this subject. In a series of articles by leaders in various departments concrete evidence was given that modernization is a tangible thing. As Mr. Budd pointed out, it is futile to speak of the "good old days," for that is water gone over the dam. We must grow with the times and must give the service that the public demands. What was good enough once is far from satisfactory now.

That modernization pays is told in a striking way in one of the articles. By purchasing new and suitable equipment and rerouting and rescheduling the cars, it was found possible to increase the earnings available for interest from $155,000 to more than $4,000,000, on a property taking in some $12,000,000 gross revenue. The return on the investment was raised by this means from less than one-half of 1 per cent to nearly 8 per cent. Inasmuch as the new capital needed was only some $4,500,000 the improvement represented an enormous profit on that portion of the investment.

But to obtain results such as this, and to give the service to which the public feels that it is entitled, requires lots of hard work and perhaps personal sacrifice on the part of the owners and of the management. It means a fuller appreciation of the job and its possibilities than many of the owners and operators of traction properties have had in the recent past. Many old theories must be thrown aside, and many

time-honored practices abandoned. If those in charge have the courage and the determination to forge ahead, they will prove faithful servants not only to those who have supplied the capital, but to the people whom they are striving to please.

Modernization Is Not Merely Conversation

TODAY the electric railway industry is beginning earnestly to grasp the modernization idea and is coming to realize some of its possibilities. But will the industry penetrate the shell of generalization and reach the meat—the specific day-to-day improvements in practices that are possible in every branch of the industry? Talking modernization and generalizing about it are fine. They inspire enthusiasm and help to keep us interested in the subject. But to enthusiasm must be added determination and painstaking analysis.

Modernization of what? Of our thinking, of management, schedules, franchise arrangements, equipment, line department, power facilities, finances, track, freight handling, maintenance methods, accounting methods, handling claims, insurance and salesmanship—everything. No department of the electric railway business is above possible improvement. The modernization idea permeates every activity. Existing practices are subject to critical scrutiny. Improvement will come not only from comparing the practices of one property with those of another, but also from the application to the railway industry of methods which have been developed into other branches of industry.

The reader is urged to go back and finish reading, or read again, every article in last week's Annual Convention Number of the JOURNAL. Articles on this subject by such men as Budd, Dana, Beeler, Maltbie, Thirlwall, Thompson, Gould, Jones, Addinsell, Gailor, Stoffel, Brinckerhoff, Davis, Handlon, Mahan and Jackson are far too valuable in specific suggestion to be laid aside with a single perusal. Every one who reads these articles will find more than one practical suggestion that he can apply to his own company and his own work.

Keeping Down the Fire Risk

SOMETIMES it is not sensed that the law of probabilities is always at work. In the case of fire risk, particularly, this law determines the liability for the future from the experience of the past. While it is impossible to say just where the next fire will occur, or how serious its results will be, the probability that it will occur somewhere can be worked out with almost mathematical accuracy.

The importance of this feature of the probability of fire is emphasized in the article on "Fire Insurance" in last week's Annual Convention Number of this paper. It is only by a consistent reduction of losses that a general reduction of insurance premiums may be enjoyed. These reductions may be obtained in several ways. Better construction, installation of approved fire-fighting apparatus and training of employees in its use, better "housekeeping" and co-operation between the companies and the fire prevention engineers are among the principal means suggested.

Some of the improvements recommended are basic, such as better construction, and can be incorporated only in the design of new buildings or cars. But it is surprising how much can be accomplished with the existing plant. For instance, good "housekeeping" has a marked influence on the insurance rate. This is because the experience has been that where trash accumulates, dirty or oily rags are left in dark corners, where smoking is permitted or where the fire doors or fire-fighting equipment are obstructed so that they do not function, the greater number of fires occur. It cannot be argued that the correction of such conditions requires new capital, but still there are many properties where the necessary care has not been taken to make the conditions as good as may be.

With so much to gain and so little to lose, a study of points such as those mentioned in the article referred to should be made on every property, big or little. This should be set down as one of the first things to do as soon as the convention is over and the executive is back in harness. Fire never gives warning of where it is going to strike, and the best method of fighting it is to make it difficult for it to start. For besides the possibility of low rates, good housekeeping and other fire-prevention activities mean even more in avoiding disruption to service.

"There Is Nothing New Under the Sun"

THOUGH fashions may come and go, and the modernization of today may become the obsolescence of tomorrow, all the evidence of the ages indicates that human nature is not affected by time. This was told forcefully some thousands of years ago by Aristotle, and was quoted in the Annual Convention Number last week as the text of the article on "Ride Salesmanship."

The selling instinct does not seem to be inherent in the railway organization. When it is found necessary to get more business, the executive seems prone to make blunders that any merchant would avoid without much thought. The railways really have something to sell, and the public wants to buy, but without some means of getting buyer and seller together there will be no sale. Life insurance is universally conceded to be practically a necessity for the modern man, but how many of us rush to the company and purchase insurance without solicitation—and very earnest solicitation at that—from anywhere from one to a dozen agents?

As the author pointed out, one cannot make a good sales appeal unless he has something to sell. It is useless to tell of the wonderful scenery to be observed through the car windows when they harbor so much dirt that the outside world cannot be seen. Neither can one boast of frequent service when it is notorious that the cars are often so badly bunched that the actual headways are two to three times as great as those shown on paper.

If the public wants changes, why not let it have changes? Certainly we know that the milliners and the dressmakers could not make a profit were it not for the incessant changes. The aggressive management will be alive to the possibilities of dressing up traction service in a variety of packages. The fundamental service must be the same, but riders can be made to feel that something is being done all the time for their comfort and their convenience.

It will be well for every one to consider these aspects of the business, for while they are not subject to exact rules, as are the engineering features of cars and track, still they play an important part in the success of the railway.

Railway Franchises of Today

By W. H. Maltbie
Consultant on Public Utility Valuation, Rates and Taxation
Baltimore, Md.

This Concluding Installment on Electric Railway Franchises Lists and Discusses the Principal Provisions Desirable in an Electric Railway Franchise Under Present Legal and Economic Conditions

MANY of the older franchises grant only the use of special streets, thus leaving the ..ay open for the creation of competing systems. Such competing systems were frequently created and in some cases such competition still continues.

Even before the period of commission regulation it was very doubtful if the advantages of such competition offset the inevitable economic waste and public inconvenience. Today, under a limited net return, competition in transportation is an economic waste which cannot be justified.

Therefore the modern franchise should grant the exclusive right to furnish mass transportation within the municipal area. Long-distance carriers, steam, electric or motor, must of course enter the city, but they should not be allowed to compete for local city traffic.

This does not mean that the company should have a free hand to lay tracks on any street at will. It does mean, however, that there should be no need of a new franchise for each new extension or new connection, but that new routes or connections, approved by the proper municipal department as in conformity with the city plan, should be built under the original franchise without further grant or legislation.

Form of Motive Power

The motor bus is a permanent member of the transportation family. It has its own field, within which it is a more economic transportation unit than the street car. Experience is not yet broad enough to fix the limits of that field exactly, and the present limits will be much narrowed if the bus is put on a parity with the street car as to public burdens, and as to construction and maintenance of way.

But the moment either vehicle undertakes to go beyond its field the cost of service to the public is increased, not merely because a service is rendered by the wrong vehicle, but even more because the resulting competition cuts down the net return of the proper vehicle and necessitates an increase in rates.

The problem of furnishing mass transportation is fourfold.

1. Over what routes does the public demand service?

2. What type or types of service does the public desire on each route?

3. How many of these routes and services will the public support by the payment of full costs and fair return?

4. What is the most economical vehicle to furnish each service?

If this problem is properly solved there are no adverse interests between the various routes or services, and there is no economic justification for loading upon the public the expense of two administrative organizations, or even the expense of additional accounting necessitated if there are two franchises held by the same investing group. In a word, all mass transportation, rail or motor bus, should be furnished by one company under a single franchise.

Providing for Extensions

The matter of extensions of service—new lines, lengthening of old lines, or increase of service on existing lines—was usually or frequently ignored in the old franchise; but if the modern franchise is to grant the exclusive right to furnish mass transportation, it must provide for such extensions. They cannot be left entirely to the whim of the company, since the municipality must plan for and control its growth, and it cannot do so unless it can be sure of needed transportation. Neither can the matter be left to the mere demand of the municipality, since too great or rapid an expansion may make it impossible to earn, on a satisfactory rate schedule, that fair return which is absolutely essential for the preservation of credit. This is the additional danger previously mentioned which threatens the scheme of rewarding efficiency by increased net return.

The problem is too complex for discussion in the limits of this paper, but it centers about two factors which have received too little attention in schedule and rate making—the average length of ride and the load factor.

A transportation company manufactures seat-miles, and today they cost in general, including a fair return, something between 1 cent and 1½ cents each, say the latter figure. If the load factor, defined as the percentage of seat-miles sold to seat-miles manufactured, is 100, a 7½-cent fare will pay for a 5-mile ride. If the load factor is only 50, and it is requently lower than this, a 7½-cent fare will pay only for a 2½-mile ride. Anything which lengthens the average ride, or lowers the load factor, automatically raises the cost of the ride.

Additional service on an existing line, or the opening of a new line which divides the traffic of an old line, lowers the load factor, and the extension of a line usually both lengthens the average ride and lowers the load factor.

It follows that efficiency stands little chance of a reward if that reward depends on a lowering of the fare, whether measured in money or in purchasing power, if the municipality can demand at will whatever extensions of service it desires.

The problem has not, so far as the writer knows, been satisfactorily solved. Probably the best suggestion so far is to provide in the franchise for a reference to the commission in those cases where the municipality and the company cannot agree; with the provision that increased cost, if any, shall be met by increased fare, and that the company be not penalized for this increase.

The constant expansion of American cities, and the general demand for a flat fare within the city limits, is a special illustration of the danger previously mentioned. Already in all larger centers the short rider is paying a large part of the cost of caring for the long rider. If the average ride continues to lengthen, the time may come when the short rider will decline to pay, and will walk.

The franchise, therefore, should not bind the parties permanently to the flat-fare-to-city-line plan, but should leave it possible to turn to the zone plan at some future date. Moreover, so long as the public continues to pay the full bill, the choice between the flat fare and zone systems should be left to the public, rather than to the company, provided that the latter is not penalized by a reduction in net return if the change brings about an increase in costs.

If however, the system is suburban, as well as urban, it may be necessary to lodge final authority in the commission in order to protect the suburban rider.

Paving and Other Burdens

The older franchises usually involved a cash payment by the company to the municipality, the payment of an annual charge, or both. They also usually involved the assumption by the company of special burdens, such as paving, street cleaning, free carriage of municipal employees and similar items. Under the old legal and economic conditions such provisions were merely a part of the price paid by the company for rights which were essential to the creation of a profitable business, and it was good business on the part of the municipality to get all it could, in first price, annual charge, or assumption of expense.

Today conditions are entirely changed. If a municipality charges a cash sum for a franchise, the amount paid, whether it be one dollar, or a million, goes into the rate base, and the public pays 7 or 8 per cent on it in perpetuity. The public could much better afford to borrow by an issue of municipal bonds than to raise money by sale of a franchise.

In the same way it is no longer sound economics to impose special taxes of other special burdens on the transportation company. Under the present system, these are all passed on to the rider, who is thus made to pay, in proportion to his use of transportation, a public charge which in equity should rest equally on all citizens. It is just as logical to make water users pay all the expenses of the fire department as it is to make car riders pay for paving; just as logical to make the grocer feed the policeman and prorate the charge among his customers as it is to make his fellow riders carry him.

Cheap transportation is essential to public prosperity. Therefore, transportation should carry its own costs, *and no more.* The modern franchise should be granted without charge, should call for no special taxes, and should impose no special burdens not shared by all forms of business.

Tax Exemption

This raises the question as to whether or not a public utility should be granted an exemption from ordinary taxation. In view of the fact that all taxes are passed on to the car rider, it is sometimes urged that the utility should be entirely exempt and that transportation thereby would be cheaper.

That such action would actually cheapen transportation is undoubtedly correct, but transportation should bear its full costs. Those elements of municipal expense which are generally covered by the general tax levy (police protection, fire protection, public health, public education, etc.) are just as essential to the operation of a transportation system as they are to any form of manufacturing, or to wholesale or retail trade. Consequently, there would seem to be no reason why the transportation dollar spent by the car rider should escape its share of these expenses any more than the food dollar, or the housing dollar spent by the same individual.

In time we may conclude that taxation which is more or less directly passed on to the ultimate consumer should be based upon the cost of the service rather than upon the capital investment necessary for its performance. If this happens, it will be held unjust to charge the purchaser of transportation 10 per cent of its sale price for taxation, and the purchaser of food perhaps one-half of 1 per cent or less for the same purpose, merely because the food business is one which makes six to eight turnovers per year, while the transportation business takes from three to five years for a single turnover. At the present time our taxing theories have not recognized this distinction, and transportation systems must probably continue to be taxed on the basis of investment rather than on the basis of gross or net incomes.

The modern franchise, therefore, will not exempt the utility from those forms of taxation which are borne by other industries.

Life of Franchise

An important element in the old-time franchise was the term within which it was to be operative. Many of the franchises still in force were limited to 15, 20 or 25 years, with or without provisions for the purchase of the property by the municipality at the end of the franchise period, and with or without provisions for automatic renewal of the franchise if such purchase was not made.

Under the old legal and economic conditions such provisions were not entirely unjustified, but they involved the assumption that the transportation company could expect, during the term of the franchise or its renewals, to recoup construction costs and early losses, or at least the difference between this sum and the price which would be paid by the municipality if it exercised its option to purchase.

Under the new legal and economic conditions there is no possible chance of such recoupment, whether the franchise calls for service at cost, or for a rate schedule subject to constant commission revision. The company is in either case limited to a fair return, and has no opportunity to liquidate even its bond indebtedness, much less its capital stock.

Under these conditions it will be practically impossible to finance expensive modern construction and equipment under a limited term franchise, unless it is made clearly evident that the ultimate purchase will constitute a full return of the initial capitalization, plus a recoupment of losses.

If there were any doubt of the accuracy of this statement its demonstration is to be found in numerous cases where a utility approaching the termination of its franchise without having been able to recoup the original investment has found it absolutely impossible to secure the necessary credit in order to make extensions to its system and service demanded by the needs of the growing municipality.

The modern franchise therefore should not provide for termination at any definite time.

Privilege of Purchase

It does not follow, however, that the municipality should enter into a service contract, or franchise, which binds it permanently to a given organization. Each of the parties to the contract should have the opportunity of withdrawal. The company has this opportunity through its power to sell its property as a going whole. The investors have the same power of withdrawal through the sale of their stock or bonds. The municipality, if it becomes dissatisfied with the service and fails to secure satisfaction by any of the safeguards which have been included in the franchise, should have the privilege of discharging the company and entering into a new service contract with other parties, or, if it so desires, of undertaking to run the service as a municipal function.

It is inconceivable, however, that such a change is to be accomplished by tearing up tracks and scrapping equipment. The only practical economic method of dealing with such a situation is for the municipality to acquire for its own use, or for resale, the plant of the existing system.

But, if the credit of the operating company is to be preserved, this provision for purchase by the municipaliity must be so drawn as to make it certain that the investors will receive dollar for dollar the money which has been furnished by them. Moreover, since the entire contract has been based upon the assumption that the municipality will pay the costs of operation, the costs of maintenance, and a fair return, any deficits which have been accumulated in any of these items must be added to the purchase price before the property can be taken over.

It will also happen in many cases that change in the art, inadequacy, or public requirement has forced the retirement of portions of plant or equipment before they were actually consumed in service, and before an adequate reserve has been accumulated for their retirement. In such cases, under modern practice, the capital invested in prematurely retired property will be amortized, and the purchase price must necessarily include the unamortized portion of such capital.

It follows, of course, that any reserves which have been accumulated, either to meet future retirements of property, whether worn out in service or to be withdrawn through obsolescence, inadequacy or public requirement, pass with the property to the municipality, and this no matter whether they are held as cash on deposit or have been invested in additional property.

It is also true that if the company has been guilty of dereliction, if it has failed to keep its side of the contract, if it has dissipated the funds collected for maintenance or replacements, and the result of this dereliction is a deterioration of the property, the company itself must expect to pay the penalty of such action in the form of a reduction in purchase price.

This provision for purchase contains one very serious danger to the company which is operating under the plan of service at cost plus a reward for efficiency. For example, assume that a service-at-cost franchise has been based upon a 6 per cent return with a sliding scale under which an efficient management has been able to push the return to 8 per cent. If the property can be taken over at any time by the municipality on a mere cost basis there is an immediate incentive to take over such a property and resell it on a 6 per cent basis. In other words, the efficiency of the operating organization creates the desire, and the franchise offers the opportunity, to take over the property.

The most natural safeguard against such a condition is to recognize in provisions for taking over the property the possible existence of a going value. While similar in kind, this going value will differ in quantity from the going value which enters into a valuation, whether for purposes of condemnation or for the determination of a rate base. The going value which enters into the franchise purchase provision should not exceed, in a service-at-cost franchise, the capitalization at a reasonable rate of the right to excess earnings acquired through efficiency, and, in a commission rate scale franchise, should not exceed the accumulated difference between the actual and the maximum allowable return.

It is important both to the municipality and to the company that definite provisions as to the price to be paid for the property should be incorporated in the franchise, and that this price should not be left to be determined by a condemnation proceeding under the power of eminent domain, or covered by any vague phraseology, such as the provision that the municipality shall pay the fair value of the property. In either of these cases the municipality runs the risk of being compelled to take the property over at a very substantial advance over the actual investment, due to such economic changes as we have recently experienced, while the company, particularly as to investments made at the present time, runs the risk of having its property taken over at less than the investment cost. Moreover, under this plan the company runs the risk of being compelled to carry all of the accumulated losses due to obsolescence, inadequacy, or public requirement.

Under such conditions the investment to some extent becomes a speculative one and the cost of money is correspondingly increased. This hampers the company in its development, and increases the cost of the service to the car rider.

Conclusions

The modern franchise, if it is to rest logically upon the present legal and economic situation, should provide for service at cost, with a sliding scale of net return to promote efficiency, safeguarded against changes in the purchasing power of the dollar and against public demands for extension of trackage or service which injuriously affect the average ride or the load factor.

It should cover all mass transportation in the municipality and include the right to make future changes in trackage and future extensions.

It should leave questions as to zone system or general flat fare within the municipality open to change from time to time.

It should call for no purchase consideration, no special taxes, and no special burdens, but should provide for the same property taxes as are paid by other industries.

It should run for an indefinite period, subject to acquisition by the community at any time, on reasonable notice, at a price which can be definitely determined under the provisions of the franchise, which price should include total invested capital, any foregone returns, and compensation for going value, in so far as such going value may be evidenced by the ability of the company to earn an efficiency reward. When this price is paid the purchasers should acquire with the property all accumulated reserves.

Applications of Modern Methods in Accounting Practice

By W. L. Davis
Auditor Lehigh Valley Transit Company, Allentown, Pa.

In This, the Second of Three Articles, Plans Are Discussed for the Arrangement of the Office, Ledger Accounts, the Journal and Cash Books, the Preparation of Reports, and Divisional Accounting of Receipts and Expenses, Non-Operating Income, Fixed Charges, Depreciation, Etc., by a Modern Accounting Department

THE modern accounting office should be laid out in such a way that there is little lost motion in handling vouchers and other routine work from one desk or section of the office to another, and the departments should also be arranged with due regard for filing and storage vault facilities.

In handling current work, each day should be a unit as far as it is possible to arrange it. This is not so easy to accomplish in the general office as it is in an operating or division office, because of the variety of work handled, but it will be found advantageous to give it some thought. Frequent checks on operating and construction records save considerable time at closing, and if these records are balanced with the controlling accounts regularly and frequently the man in charge of the work can prepare analyses of costs and comparisons of increases and decreases very soon after the accounts are closed—in fact, he can review them before they are closed and readily discover any large inaccuracies.

Arrangement of Ledger Accounts

There have been numerous substantial improvements made during the past twenty years in the basic records of the accounting department formerly known as the cash book, journal and ledger. Although it is far from universal practice, the modern general ledger is gradually being changed from the bound style to the loose-leaf record. Both have their advantages, but it should be said of the loose-leaf record that it is usually more economical, easier to handle and easier to arrange. The accounts, in either form of ledger, should be grouped in such a way that a trial balance will automatically group the accounts in balance sheet form, thereby not only saving time in grouping the accounts at the end of the month but also establishing uniform balance sheet grouping from month to month. The assets and liability accounts should be in one section of the ledger and the profit and loss accounts in another, in order that separate trial balances may be taken of each, at which time the balance in the current year profit and loss account, when added to the corresponding balance at the close of the period, will represent the corporate surplus or deficit at the end of the current period. This can be arranged in such a way that the trial balance, balance sheet and profit and loss statement can be prepared at the same time.

In former years the general ledger contained practically every account that was used by the company, but our modern accounting requirements are such that this would be a very cumbersome method and one which would result in all kinds of delays when monthly figures are needed. In order to obviate this difficulty the use of controlling accounts has become almost universal, and in this manner the general ledger accounts are subdivided and carried in separate records.

It will be found preferable to control as many accounts as possible and reduce the general ledger accordingly. This is particularly true of operating expenses, construction accounts and tax and other accruals. All necessary details can be kept in sub-ledgers, the totals of these sub-ledgers being kept in agreement by frequent checks with the corresponding account in the general ledger. By this method the number of accounts can be expanded indefinitely without adding very many accounts to the general ledger.

The old form of ledger sheet usually provided for debits on the left side and credits on the right, without much space for explanations. In fact, such explanations as were shown were usually made in the form of a brief description of the contra account represented by the entry. This was entirely satisfactory from a mechanical point of view and doubtless saved considerable of the bookkeepers' time, but when it becomes necessary to analyze an account drawn up in this fashion numerous difficulties are presented, and the individual preparing the analysis is put to some inconvenience and considerable delay in investigating each entry. The modern accountant can profit by this experience and insist upon full explanations on all entries, providing for such explanations by a ledger sheet with a wide space for description of the entries and three columns on the right-hand side of the sheet, one for debts, another for credits and a third for balances. This form will not only provide more space for explanations on a standard size sheet but will also enable the bookkeeper to make his entries in consecutive order and carry his balance after each entry if he desires.

Improvements to the Journal and Cash Book

Substantial improvements have also been made to the old-fashioned journal, or day book, as its name indicates. This also took the form of a bound book, and contained a record of the daily transactions as they pertained to the different accounts, each item being in the form of a debit or debits to one or more accounts and credits to other accounts, sometimes accompanied by a very brief explanation of the entry. These entries were written up daily and posted to the general

ledger accordingly—a very simple process with a small company or when comparatively few accounts are carried, but an absolutely impossible method under modern conditions in a large organization.

The modern journal, or voucher record as it is usually designated, consists of a large book, usually in loose-leaf form, which provides space for a description of each entry and columns for the charges to the various accounts. Separate columns are provided for the accounts more often used and for the control accounts which are supported by separate detail ledgers, and a "sundries" or "miscellaneous" column for debits and credits to accounts not often used, the totals of these control columns and the individual entries in the sundries column being used for much the same purpose as the individual entries in the old-fashioned journal.

This form of record may be used for any kind of an entry, but it will be found to be of advantage to maintain a separate section for entries crediting accounts payable for current purchases. The same form of sheet may be used, however. The entries in the journal or voucher record should be supported by proper vouchers, approved bills, written authorities for entries, and the like, each entry being given a reference number and posted to subledgers as required.

The old form of cash book can also be changed to advantage by providing separate columns for the various accounts to which the cash receipts are to be credited and the disbursements charged. It will often be found advantageous to segregate receipts and disbursements and maintain separate records for each purpose.

Preparation of Reports

One of the primary functions, if not the most important function, of the accounting department is the preparation of regular reports for the executive department. As the modern executive is a very busy man, he requires this information in concise form and as soon after the close of the month or other accounting period as it is possible to prepare it.

The results of the operation of the property from month to month should be sent to the executives and financial connections in a report setting forth the financial condition of the company. This should be done in the form of a balance sheet and its earnings in the form of a tabulation of the various items entering into the income account. In order to save time for the man reading the report, the information can be condensed to the extent that a short form of income account may be shown on the same page with the balance sheet. This income account need only show gross earnings, operating expenses, net from operation, other income, gross income, deductions, and net income available for dividends. Comparative information showing corresponding data for the prior year and for the year to date or preceding twelve months may also be shown. Information of this kind may be prepared very readily after the accounts are closed and can be used as a preliminary report of the business for the month and the current financial condition of the property. If the accounts are properly grouped in the general ledger this information can be abstracted in a few hours.

Of course, this cannot be prepared until after the accounts are closed, and the accounts cannot be closed without prompt reports and thorough co-operation from the operating department. A definite schedule should be worked out between the accounting department and the other departments toward this end, and this schedule must be adhered to if the executives are to receive their reports promptly enough for them to be of any service. This should be understood by every one handling the routine.

This preliminary report may be supplemented by a few memoranda concerning abnormal increases and decreases in earnings and expenses. If the figures for the prior year are worked up in advance, and if the current records are handled in such a way that they are self-analyzing, this subject will not cause any difficulties. In preparing figures and data for use outside the department, the use of accounting terms and technicalities should be avoided as far as possible.

Before the balance sheet is prepared, the more important details of the asset and liability accounts should be available in order that any questions as to the respective items may be answered.

In addition to the preliminary report the executives should also be furnished with a complete summary of earnings, expenses, fixed charges and net income, set up by accounts and compared with corresponding periods as required. It will also be of interest to report the status of all construction work which may be in progress as of the close of the accounting period, showing a description of the job, total estimated cost segregated as to capital and other accounts, total expenditures to date and balance remaining to be spent. In addition to these subdivisions the report should include such analyses of balance sheet accounts as may be considered necessary or desirable, with special attention to maturities on short-term obligations.

The preparation of these reports may be materially speeded up if the forms are prepared in advance and figures for prior years entered before the accounts are closed.

Need for Divisional Accounting

One of the subjects to which the modern electric railway accountant should give considerable attention is the study of divisional accounting, or the allocation of the income account over the various operating units of the property. This information is not only of considerable value for general purposes, but also in establishing the cost of operating non-productive lines.

At first this problem may appear rather simple, but the more it is studied the more complicated it appears to be. It is, of course, manifestly impossible accurately to allocate all revenue and expenses to operating divisions and units of the property, but fairly satisfactory results can be attained if the accounting system is drawn up with that end in view. Of course, before divisional accounting can be handled satisfactorily, the accounting department must be advised of the divisional lines determined upon, with a full description of each operating unit. Necessary physical data pertaining to this subject should be available at all times.

Divisional Accounting of Receipts

A study of divisional accounting should of course begin with the most important item, which, in most electric railways, is represented by passenger receipts. In order to allocate passenger earnings properly the supervisory employees of the transportation department must be familiar with divisional lines and must be instructed that conductors'

reports be made accordingly. For this purpose separate trip sheets may be used, but it might under some circumstances be preferable to use one trip report, upon which could be noted the trips made on each division by each conductor each day, the total number of fares collected on all divisions in a certain day being equal to the total number of fares registered on all cars on that day. This analysis need only be made by the conductor as to the number of fares, as the necessary revenue compilations may be made either in the division accounting office or the general accounting department.

The same general scheme may be used in reporting revenue tickets, tokens, etc., as collected, the only difference being in the record of registration shown by the conductor, who would under normal conditions be required to segregate cash fares from other kinds of fares as they are collected. At the close of the day's business the number of fares registered on all cars may be compared with the total number of fares on the various divisions.

Divisional accounting for freight receipts presents a somewhat more difficult problem, as it is obviously necessary to analyze each waybill and ascertain the correct proportion of the freight earnings as applicable to the various divisions. This may be considered a rather complicated matter, but should any company be required to handle a problem of this kind it would likely find a tabulating and computing machine very helpful. If it is not considered necessary to install a machine for the purpose, the waybills may be assorted daily and allocations made on a number of waybills at a time. Percentages for divisional prorations may be worked out and be determined upon in advance.

Other revenue items should be allocated upon the best information available and applicable to the particular account under consideration. As some of the revenue accounts represent comparatively small items it might be advisable to apply arbitrary allocations based upon past experience. However, the revenue from station and car privileges may be arrived at fairly closely, and the rentals received for tracks and buildings may be determined accurately. Allocations of these accounts, however, often depend upon conditions on various properties.

Divisional allocations of operating expenses present numerous difficulties, and in order to obtain any results at all it is necessary to make a number of arbitrary allocations. This subject, however, is one of increasing importance and should be given considerable thought.

Divisional Allocations of Operating Expenses

In considering divisional accounting as applied to operating expenses the first item that should be considered is the cost of maintaining ways and structures. There are many charges to the accounts included under this caption that can be positively identified as belonging to certain divisions, while on the other hand there are always numerous common charges which must be prorated on some arbitrary basis, and in addition there must be allocated the expenses of maintaining joint track and overhead lines used by different divisions. These common charges can, with some degree of satisfaction, be prorated on the basis of car mileage, but this is not altogether desirable for the reason that there may be items applicable to one or more combinations of divisions and not to the property as a whole, thereby requiring the accounting department to make certain segregations of such items in order to apply the proper proportions to each.

The best results will likely be obtained by considering each section of joint track as a separate unit and applying direct charges accordingly, dividing these charges at the close of the accounting period between the divisions involved on the ratio of car mileage or any other basis satisfactory to the company. After the proper allocation of these items is determined upon, the general supervision and other items common to all divisions may be applied on the basis of the amount of direct charges allocated to each division.

In order to accomplish this end within a stated period after the closing of the accounts, the operating expense ledgers may be drawn up in such a way that the charges to the individual divisions and the units represented by joint trackage can be set up in separate columns and the totals of columns representing common charges divided after the closing period by means of a journal entry charging and crediting operating expenses. This will not affect the general profit and loss statement and will not necessarily interfere with any preliminary reports of financial condition and income for the current month which may necessarily be sent to the executives before the complete report.

Divisional allocations of equipment costs are comparatively simple if certain cars or certain types of cars are definitely assigned to different divisions, but as this is not always done by the operating department it is necessary to devise other methods of arriving at this result if such allocations are required by the company. In order to effect this result it might be well to consider the subdivisions of the accounts covering maintenance of equipment in such a way that the cost of types can be determined.

The accounting department, of course, needs the assistance of the equipment department in arriving at this result, and it will be necessary for the accounting department to assign subclassification numbers to the equipment accounts in order that the shop employees may be familiar with the requirements. As labor charges are incurred and material taken from stores, the account numbers applied thereto should include the sub-account numbers and the detail records in the general office handled accordingly. If this is done, all of the equipment costs will be subdivided in such a way that the maintenance of each type of car can be arrived at. In order to make the necessary divisional allocations, however, it will be necessary to supplement this record by analyses of the mileage made by individual cars on each division, with a view toward determining the mileage made by each type of car on each division. The maintenance cost on each type of car can then be applied to each division in the ratio reflected by the analysis of the car mileage.

This method will automatically provide for the necessary accounting when cars are transferred from one division to another. In order to accomplish satisfactory results, however, the individual car mileage must be carefully worked out in accordance with the divisional segregations already determined, and it will of course be necessary to have the divisional schedules used in providing the cost parallel similar data used by the department figuring the car mileage.

A study of the allocation of power cost by divisions is, under ordinary

circumstances, very difficult and involves so many engineering technicalities that it is often outside the province of the accounting department to arrive at a reasonably accurate set of figures. If power costs are to be subdivided on this basis it might be well for the accounting department to receive the proper engineering advice on the subject and determine its basis of allocation accordingly. Each company possibly has a different situation to work out and it would be very difficult to recommend any definite rule to follow, although in the absence of a more satisfactory method a straight allocation of power costs on a car-mileage basis might be reasonably close, particularly if the averages of power consumption in kilowatt-hours for the various types are anywhere near equal to each other.

Conducting transportation can possibly best be subdivided by daily analyses of the time of trainmen, or, in the absence of such method, on the basis of car-hours on each division. Although the former method involves a little more work it is undoubtedly the more accurate of the two. There are a number of other charges to this account which may be applied to the various operating divisions on an actual basis, but there are always certain expenses representing supervision costs which apply to the entire system. These expenses may be allocated on the same basis as the wages of trainmen.

Traffic expenses and general expenses present probably the most difficult problem of all and there are a number of sub-accounts included under these headings which must be prorated in full on an arbitrary basis. Most of these accounts might satisfactorily be apportioned on the basis of gross earnings, but others should be prorated on the ratio reflected by the property investments on the various divisions if these figures are available.

Included under the latter caption might be considered valuation expenses and taxes, excepting such taxes as are based upon gross receipts, which, of course, should follow the percentages shown by the gross earnings. Cost of insurance may be worked out on a more or less actual basis to some extent, but this depends upon conditions on individual properties and is not subject to any regular method. The insurance on rolling stock might be apportioned on the basis of individual car mileage if the equipment is not assigned to separate divisions. If any charges included in the general expense account are applicable to any one division or combination of divisions, it might be preferable to allocate each item as they are charged in the accounts.

Non-operating income, fixed charges and depreciation accretions must necessarily be apportioned arbitrarily, with the possible exception of interest on underlying bonds and interest on bonds issued for current construction. Interest on these securities may be considered applicable to the divisions represented by the investment. This will not necessarily include all of the fixed charges and there must of course be some items charged out arbitrarily. Possibly the best basis to use in connection with such charges would be the ratio of the property investment on each division to the total, if such figures can be arrived at either through property appraisals or analyses of book costs.

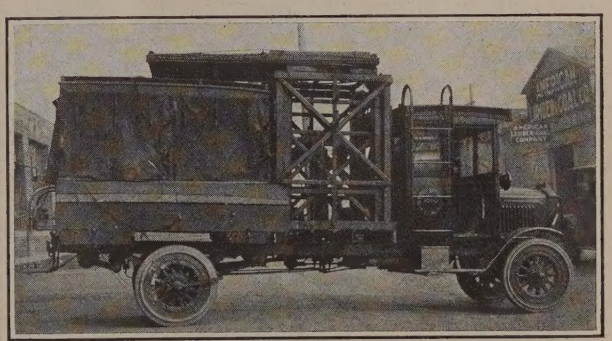
The divisional allocations of the profit and loss account are very valuable, not only for use in connection with current requirements but also in determining the return on various sections of the property. But if such figures are used, they should be used with the knowledge that they must necessarily contain a number of arbitrary items and are subject to such exceptions as might follow a situation of that kind if they are used for any specific purpose. While these suggestions may prove of some benefit to a company contemplating such allocation, it should be remembered that each company has its own operating conditions and problems to meet and this outline should be considered with that in mind.

Springs for Emergency Trucks

A SERIES of tests has recently been conducted by the Department of Street Railways, Detroit, on methods of spring supporting gasoline emergency motor trucks. The tests were conducted with two 2½-ton motor trucks equipped with Trenton towers, cabs and inclosed bodies. These trucks are used for overhead emergency work and new construction, but owing to the large amount of material carried they had become overloaded so that the rear leaf springs had lost their camber. It was necessary to install heavier leaf springs to carry the load.

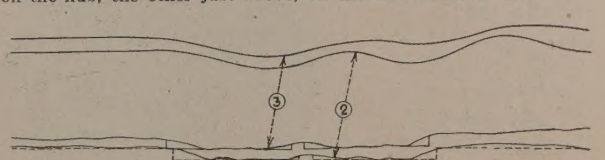
Consequently tests were made with Hiflex springs and also with cushioned wheels.

The trucks were loaded with forty bags of sand, and one of the trucks, which was equipped with artillery wheels and semi-pneumatic tires, weighed loaded 12,480 lb., while the other, with cushioned wheels, weighed 13,130 lb. The test was made at night by running the truck over a wooden framework at about 6 m.p.h., and the movement of the truck was shown by electric lights on the truck. The path of these lights was then recorded on the photographic plates of a camera. The dimensions of the wooden framework are given on one of the line illustrations. A number of records were

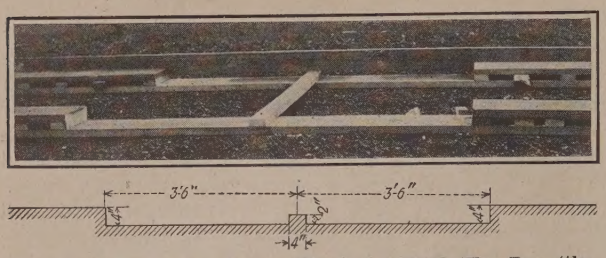


The Truck on Which the Tests Were Made

The two lights used in the test can be seen. One is mounted on the hub, the other just above, on the side frame of the car.



Comparison of the Movement of the Truck Body with the Two Kinds of Mounting



The Wooden Framework Over Which the Truck Was Run (the Drawing Shows the Dimensions)

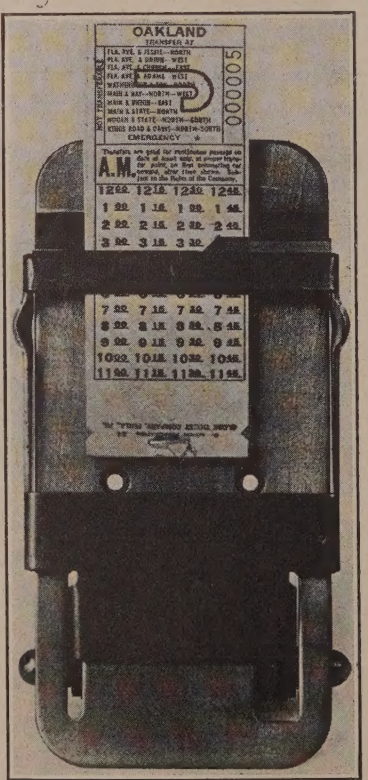
obtained, of which two are reproduced. In this drawing, "2" shows the hub line and body line when the truck was equipped with cushioned wheels and "3" when the plain wheels supported the load through Hiflex springs. In all the tests the body line was decidedly in favor of the use of springs rather than cushioned wheels. In fact, the unsprung weight of the latter has a tendency to give more of a bounding effect to the axle than the installation of plain wheels with springs.

A New Form of Tear-off Transfer

Only One Hand Is Used to Issue Transfer to Passenger and the Operation Does Not Require the Trainman's Attention

DURING the early part of 1923 a committee of transportation men from several of the Southeastern district properties of Stone & Webster was appointed to work out a simplified transfer that would be of particular value in the operation of one-man cars. It seemed highly desirable to supersede the usual form of transfer requiring punch marks by something that would require less labor, cause fewer errors, reduce abuse and permit the operator to concentrate on the safety of his passengers.

The committee decided that speed and simplicity were more important than cost. Furthermore, it was considered better to emphasize one outstanding marking than to try to have several prominent identification marks. Time was agreed to be the feature of greatest importance in the issue and acceptance of transfers. In the new type adopted the time limit cannot be extended after issuance because all succeeding hours of the day, which are printed on the transfer, are torn off and retained by the operator by means of a cutter, as shown in the accompanying illustration.



Type of Transfer Designed to Aid Operators of One-Man Cars

Other characteristic markings are less prominent. The name of the issuing line is printed in large type on the top of the transfer, and all the points at which the transfer can be used are listed. It makes no difference to the company at which point it is used, the time limit being depended on to prevent the transfer from being used for other than a continuous trip.

In order to emphasize the difference between a.m. and p.m. time, and to limit the size without reducing the size of the printing, it was decided to use transfers differing in color. Pink paper was selected for the a.m. and blue for the p.m. transfer. The tints not only distinguish the transfers but make them more difficult to counterfeit. Instead of the ordinary dates 1 to 31, ten identification skeleton letters are surprinted in red. These letters answer every purpose of the date numerals, are more flexible and reduce the number of pads of each kind of transfer carried in stock from 31 to 10. The committee selected the following ten letters as easy to distinguish: A, B, C, E, J, K, M, P, S and Z.

In service the pad is first adjusted under the knife. Transfers are issued by tearing them off. At the time of issue the use of only one hand is required and the operator does not even have to glance at the transfer in order to issue it correctly. On open cars, or at other times when a cutter is not available, the new transfer can be punched for time with an ordinary punch and issued in the old way.

Trial of this transfer at Jacksonville, Savannah and Tampa since early in 1924 has been so successful that a complete supply of transfers and cutters has been ordered for use by all of the Southeastern companies controlled by Stone & Webster.

Bristol Tramway Operates 200 Buses Profitably

THE local tramway undertaking in Bristol, England, a private company, is operating an extensive system of bus lines radiating out from the city in all directions over about a thousand miles of route. The service is provided by means of 200 single-deck buses, all equipped with solid tires. The company also engages in an extensive char-à-banc service. The bus operations of the company as a whole are making money, according to the manager.

Operating into the rural districts, this transportation serves people who are too poor to own private automobiles but who like to get into the city now and then if they can do it for a few pence. As there is practically no other service through many of the small towns touched by the bus lines, this service is a real godsend to the people. However, it is taking the trade away from the local merchants and bringing it to the larger stores in Bristol.

The minimum fare is 1d. and the amount paid varies, of course, according to the length of ride. The company is required to pay a tax of £60 a year per bus.

The local tramway is in a difficult position financially owing to the uncertainty about its future ownership. All British private tram systems are chartered by Parliamentary act for 21 years, and are subject then, or at the end of each 7-year period thereafter, to purchase by the city at the then physical value of the property. The Bristol company has passed the 21-year period and is unable to put more money into the property in the absence of definiteness as to its future.

New Materials in Car Body Construction

Development of Steel Covered Laminated Wood Panels Has Made Possible the Construction of a Type of Side Girder Which Has the Strength and Rigidity of Steel and at the Same Time Gives Better Insulation, Less Noise and Reduced Weight

By John A. Dewhurst
Day & Zimmermann, Inc., Engineers

The Steel-Covered Plywood Side Panels on Two Cars of This Type Built for the Youngstown & Suburban Railway Have Proved Satisfactory After Three Years of Service

ANALYSIS of the construction employed in recent car bodies shows an increasing interest in the application of new materials looking toward increased strength and decreased weight. Undoubtedly the automobile, as an example of the results which can be accomplished through the application of special materials for specific purposes, is partially responsible for the awakened interest in the possibilities of improving street car body construction. Unlike the automobile body, however, which is regarded as satisfactory if it survives five years of hard wear, the street car body must last several times that long.

It is interesting to trace the gradual introduction of steel into the construction of street car bodies. In the course of this development, the original all-wood type of construction was in some cases eventually replaced with steel entirely. Within the past few years, however, there has been a reaction from the all-steel construction for surface cars toward the use of wood and steel in a composite structure which takes advantage of the most desirable characteristics of each.

Steel Side Plates Have Disadvantages

During the progress of the change from wood to steel, the latter material became widely used for the side plates. This substitution of steel girder plates for the former type of wood panels gave considerably increased strength, stiffness and safety, while at the same time, in many cases, the weight was materially reduced. Introduction of steel side girders, however, also brought some disadvantages. Although the designer increased the strength, he lost the heat insulating value of the wood and the cars also became noisy. Defective insulation had to be overcome by adding cork or other insulation sheeting on the inside of the plate. In addition, from the standpoint of weight, even $\frac{1}{8}$-in. steel plates were considerably heavier than $\frac{5}{8}$-in. wood panels. Where weight reduction was accomplished, this was done through the simplification of the framing structure made possible by the use of the flat girder sides.

Three years' experience in the use of laminated wood panels having thin galvanized steel sheets cemented to the faces makes it possible to analyze some of the advantages obtained from this type of construction, and to point out the progress which has been made in devising methods of applying such material to car frames of either the steel or wood-post type. About three years ago Day & Zimmermann, Inc., arranged with the G. C. Kuhlman Car Company for the construction of two double-truck interurban cars for operation out of Youngstown, Ohio, in which this material, which is commonly known as "Plymetl," was used for the purpose of reducing the car weight to a minimum consistent with strength and safety. These cars were designed to seat 44 passengers comfortably—

Battens on the Outside Form the Best Method of Applying Panels to the Car Framing

with wide aisles and liberal spacing between seats. They were made 8 ft. 6 in. wide over all, and the seats were spaced on 32 in. centers. A curved side type of construction was adopted which gave the 8 ft. 6 in. width at the belt rail but pulled the top plates and side sills in 3 in., so as to make the width at these points 8 ft. For the side girder plates $\frac{5}{16}$-in. Plymetl was used, the panels being curved to correspond with the contour of the side framing. At the same time, the entire roof was made of $\frac{3}{8}$-in. plywood, which added strength and rigidity to the structure. The design of these cars was described in the Jan. 27, 1923, issue of ELECTRIC RAILWAY JOURNAL and was further analyzed in the Sept. 29, 1923, issue of that paper. The type of side construction employed showed the following advantages: (1) reduced weight, compared to a steel sheet of comparable strength; (2) marked increase in insulation against heat and cold; (3) ease of molding to the proper curvature desired; (4) reduction in noise and drumming effects produced by all-steel construction. Since these materials were first applied in the two cars for Youngstown, careful observation and inspection after three years of service have indicated the design to be so satisfactory that similar construction has been specified on 20 single-truck cars being built for the Columbus, Newark & Zanesville Electric Railway Company, Zanesville, Ohio, and also on five double-truck cars being built for the York Railways of York, Pa., both companies under the management of Day & Zimmermann, Inc.

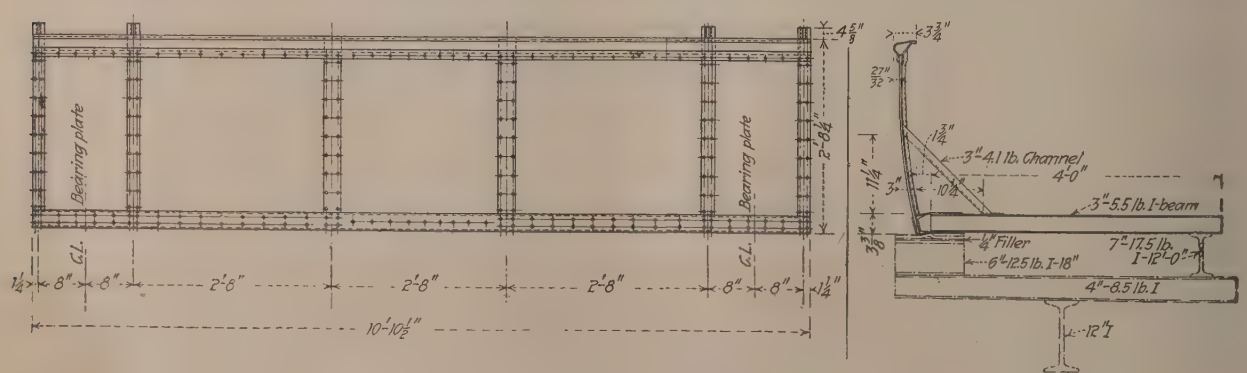
To obtain design data on the strength of girders made up with this laminated material, tests were conducted at the Case School of Applied Science, using a girder made up as shown in the accompanying sketch to duplicate as nearly as possible a section of the side of a street car. These tests were conducted under the direction of Prof. R. H. Danforth.

The load was applied through cross-beams supported on the girder. In the first test, angle braces were attached to these cross-beams, extending to about the center of the girder web, thus giving a structure comparable to the side frame of a car. In a second test, these braces were removed and the load applied directly to the girders so as to develop the riveting qualities of the Plymetl in a structure of this kind.

In both tests, the vertical deflection of the girder under load was measured by an Ames dial gage, placed under the center of the girder flange, and the twist of the Plymetl web was determined by two similar gages placed against the outer side of the girder, opposite the attachment of the angle braces. Even though the girder web was considerably distorted by twisting in the first test, due to the fact that the ends of the cross-bearers through which the load was applied were unsupported, the results of the second test, with the braces on the girder web removed, showed the action of the composite girder to be surprisingly like that of an all-steel structure. The permanent deflection of the girder from a load of more than 17,000 lb. was but 0.050 in., although this load distributed between two 3-in. I-beam cross-bearers caused a permanent set of about $\frac{3}{4}$ in. in these steel members.

RIVETS DRIVEN HOT

It has been found in practice that the composite material can be effectively fastened to steel framework by hot riveting, as would be done with all-steel plates. Tests made on this type of joint indicate that a $\frac{5}{16}$-in. rivet will support a load of more than 2,000 lb. before failure, and a $\frac{3}{8}$-in. rivet will support a load of more than 3,000 lb. To determine these figures, the joints were prepared with batten strips on the face of the Plymetl in order to distribute the pressure from the rivet head over a wide area of the material in accordance with the construction adopted in most cases where Plymetl has been used on steel frame cars. Tests were made on both double and single strap joints; namely, in the one case with straps on both sides of the panel, and in the other case with straps on one side only. With the double strap construction the rivets were in double shear and the joint failed when the material of the panel gave way due to the bearing pressure of the rivet. With the pull applied in the plane of the panel



Type of Girder on Which Tests Were Conducted

Steel-Faced Plywood Is Used for Side Panels on 60 Cars of This Type Built in the Shops of the Los Angeles Railway

for ⅛-in. thick material, the following results were obtained in tests conducted in the laboratories of the Case School of Applied Science, and in Northwestern University, by H. G. Bersie.

Case School ⅛-In. Rivet		Northwestern University Laboratory ⅛-In. Rivet	
No.	Lb.		Lb.
1	2,325	1	3,300
2	2,900	2	3,000
3	2,880	3	2,700
		4	3,800

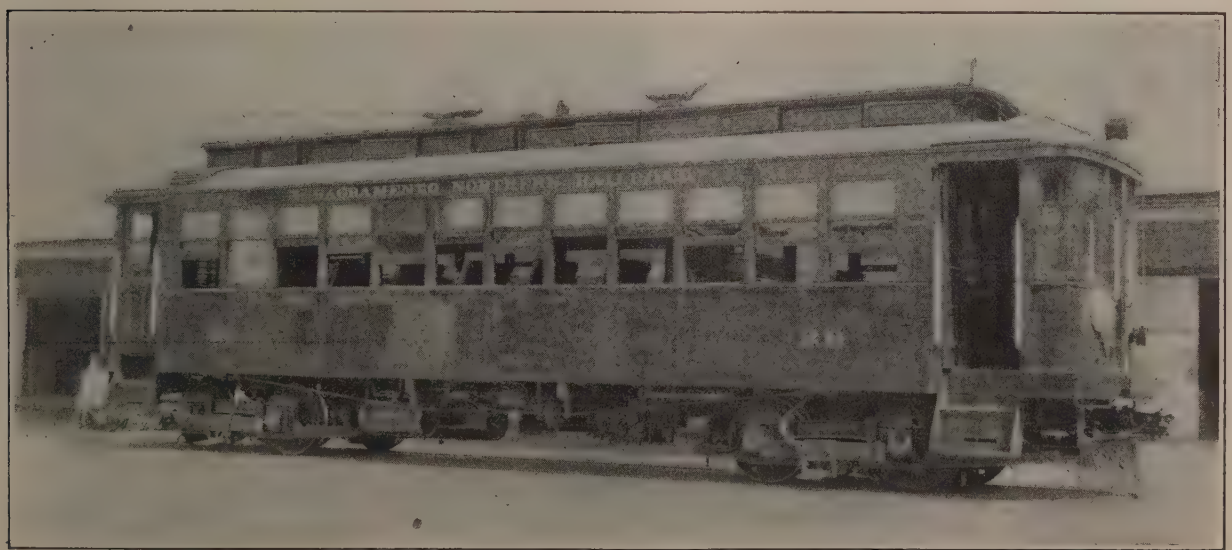
Tests made on joints having only one cover strap ⅜ in. thick and using ⅜-in. rivets driven hot gave the following results:

SHEAR TESTS ON RIVETED PLYMETL
⅛-in. Plymetl, ⅜-in. rivets in single shear.

No.	Maximum Load, Lb	No.	Maximum Load, Lb.
1	2,500	3	2,530
2	2,960	4	2,870

In each of these tests the panel was made of three-ply wood, ⅛ in. thick, covered with galvanized metal faces of 27-gage steel cemented to the surfaces of the wood. In each case, the ultimate strength exceeded 2,000 lb. per rivet, which is more than ample for the stresses obtained in street car body construction. Examination of a section of the riveted joints, to determine the effect of the hot rivet on the wood in the panel, showed that the rivet expands considerably in the wood upon driving, making an unusually tight fit. The wood does not burn, as no air can reach it. A slight charring occurs at the surface in contact with the shank of the hot rivet, but this does not seem to produce any weakening of the joint as the entire space is filled tight when the rivet is finally driven home.

To check up the nature of this type of joint and to determine whether any loosening or yielding occurs between the rivet and the panel, tests were conducted in which the displacement of the cover strap relative



Cars of This Type Were Rebuilt from Old California-Type Semi-Open Bodies. The Panels Are Fastened to Posts and Rails with Wood Screws

to the face of the panel was carefully measured with precision instruments. The results of these tests are given in the accompanying table:

SHEAR TESTS ON HOT-RIVETED PLYMETL JOINT TO DETERMINE YIELD

Two ¾-in. rivets in double shear ⅛-in. Plymetl.

	—Displacement of Cover Strap Relative to Face of Plymetl.—	
	No. 1	No. 2
Load in Lb.	Face Grain of Three-Ply Core Perpendicular to Loading, In.	Face Grain of Three-Ply Core Parallel to Loading, In.
100	0.000	0.000
300	0.001	0.000
500	0.001	0.000
700	0 002	0.001
1000	0 002	0.002
1500	0.002	0 003
2000	0.004	0.005
2500	0.004	0.006
3000	0.007	0.009
3500	0.009	0.012

Experience in the application of this composition wood and steel paneling in car construction has indicated the desirability of using the cover strap or battens to distribute the rivet-head pressure over the face of the thin steel sheet. Such straps may be from ⅛ to ⅛ in. in thickness, the thicker material being preferred if the rivet heads are to be countersunk into the coverstrap. When this material is riveted in this way, or even when it is firmly screwed to wood framing, using a metal cover strap under the head of the screw, the plywood core is slightly compressed under the squeezing action of the rivet or screw, and seems to have the same effect as that of a spring washer in holding the joint tight. The panels are found to remain firmly attached under severe working strains and no cracking of paint due to movement in the joints is obtained.

Unusual Stiffness Combined with Light Weight

In stiffness per unit of weight, this composition material shows its most interesting characteristic in comparison with steel. A ⅛-in. Plymetl panel 30 in. wide and 8 ft. long, when supported horizontally at the ends, will easily carry the weight of a man at the center. This property is highly important in the web of the girder, as such girders usually fail due to the buckling of the web when excessively loaded. In most cases where load tests have been made on structures simulating the construction of a street car body, failure has been found to occur due to the bulging or buckling of the side girder under the load. The resistance to buckling of any two panels or girder-webs is roughly proportional to the magnitude of their stiffness factors EI, in which E is the modulus of elasticity of the material and I the moment of inertia of the section per inch or width. In the following table, these factors for Plymetl and for various thicknesses of sheet steel are given:

STIFFNESS FACTORS

Thickness, Inch	Plymetl Weight, Pounds per Square Foot	EI per Inch
⅛	2.4	24,000
	Sheet Steel	
Gage	Thickness, Inches	Weight, Pounds per Square Foot	EI per Inch
16	0.0615	2.50	580
14	0.0781	3.12	1,190
12	0.1094	4.37	3,250
10	0.1406	5.62	6,960
8	0.1719	6.87	12,600

It will be seen from this table that although ⅛-in. Plymetl weighs even less than ⅛-in. sheet steel, the stiffness is more than 40 times as great. Its weight is little more than half that of 12-gage steel and its stiffness is more than 7 times as great.

Many other railway properties have, during the past two or three years, been experimenting with the use of composition material of this type in car construction, both for new work and for remodeling older type cars. The Los Angeles Railway Company has been using this material on all the cars being built in its shops for the past three years. Forty cars are now in operation and twenty more are being built, which will make 60 cars of this type in operation by the end of the year. Plymetl is used on the sides, the upright panels and the letterboard. The work is being done under the direction of P. B. Harris, chief engineer.

J. B. Rowray, general manager of the Sacramento Northern Railroad, is using Plymetl in the reconstruction of older California type cars into closed combination passenger and smoking cars, for light interurban service. The steel-faced plywood is applied as a flat panel screwed to the belt rail, side posts and side sill, and also to an intermediate rail between the belt rail and the sill. The screws are spaced about 4 in. apart and the joints between panels are made on posts, the seam being covered with two rows of screws so that each row holds one end of the sheet. All edges of the Plymetl are leaded to keep out moisture.

This material is used in Barcelona, Spain, in the construction of new cars, for wainscoting lining panels, to give insulation, and strength. In other cases it has been used for vestibule linings and for floor insulation.

It is evident, from the results aaccomplished in the application of this type of material, that by continued research and experiment it will be possible to make still further progress in designing a type of lightweight structure suitable for the severe combination of conditions imposed upon a car body in electric railway service.

Electric Railway Postal Service

THE acting postmaster at Detroit, Mich., has arranged with the rapid railway line of the D. U. R. for a railway postal service between Detroit and Port Huron. A tentative schedule worked out by E. C. Jefferies of the railway mail service provides for the departure of this car at 4:50 each morning, arriving in Port Huron at noon. Returning, the car leaves Port Huron at 5 p.m., arriving in Detroit at 10 p.m.

The D. U. R. has provided a specially constructed car, one-half of the space being allotted to the mail service, while the other half will be utilized in handling express and baggage business.

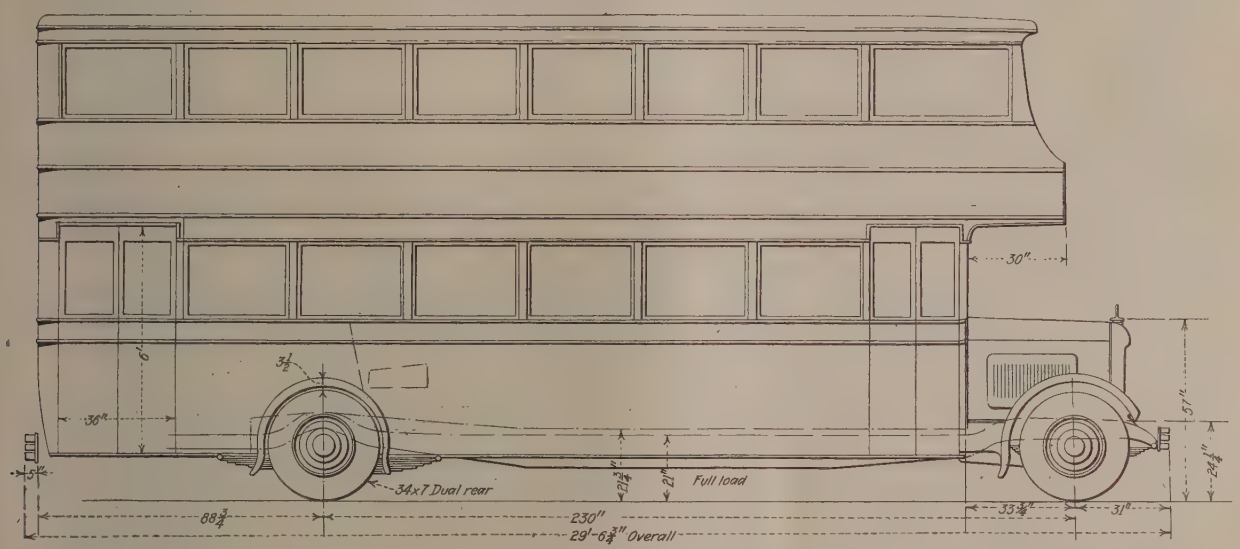
A railway postal clerk will be in charge of the car, effecting distribution of mail collected from all the cities along the route between the two points. This is the first railway postal car to operate along an electric line in Michigan and one of the few in the United States.

The stairs and passageways leading to stations of the London Underground Railways are illuminated in such a manner that the light is all projected in the direction of travel and there is no direct glare in the passengers' eyes. The effect is equivalent in softness to indirect lighting, but more efficient as it is actually direct.

Detroit Develops New Double-Deck Bus

Totally Inclosed Design Adopted by Department of Street Railways Is Featured by Low Over-All Height, Full Leather Seats and Luxurious Interiors—Ingenious Arrangement at Rear End of Body Provides Necessary Headroom

A NUMBER of interesting developments in double-deck bus design are incorporated in the specifications for 50 new vehicles of this type recently ordered by the Department of Street Railways of Detroit. This equipment will be characterized by low over-all height for a totally inclosed double-deck structure and the provision of luxurious interiors with full leather upholstered seats on both the upper and lower decks. The body design includes what is considered an improvement in the arrangement of a monitor between the two decks to increase the headroom in the aisle below, while at the same time the total over-all height is kept down. Although the monitor design has been used in buses recently constructed, the new Detroit buses will have a flush passage across the top deck, whereas other monitor designs interpose a step in the center of this passage.



Fifty of These Totally Inclosed Double-Deck Buses Will Be Put in Service by the Department of Street Railways of Detroit

Elimination of the step across the top deck is considered of considerable advantage from the standpoint of reducing the possibility of accident to passengers. At the same time this allows the over-all height for a vehicle with inclosed top deck to be still further reduced.

After deciding that the double-deck bus was the proper type for the kind of city service under consideration, the totally inclosed upper deck was specified, in order that passengers in both upper and lower compartments could be given an equal degree of seating comfort.

Overhead obstructions on some of the routes under consideration by the Department of Street Railways for the institution of bus service made it imperative to keep the over-all height of the buses at a minimum. It was found that a maximum clearance of 13 ft. could be obtained under 40 of the 47 obstructions encountered. The remaining seven structures were so low that it was impracticable to design inclosed double-deck vehicles to clear them. If bus service is ever installed on the routes where these latter obstructions are located, it will probably be necessary to depress the roadway to get adequate clearance.

Even a clearance height of 13 ft. presented a serious design problem. This was finally solved by recessing the end sill at the rear end of the body, so as to form a well, projecting into the body area far enough to allow a passenger to pass under the point where the upper monitor is cut off before he steps up to the body floor. In other words, this rectangular well in the rear end of the body floor is flush with the platform, and as a passenger does not step up into the body until his head has passed some distance beyond the rear end of the upper deck, the arrangement allows the rear end of the monitor to be cut off to form a flush passage across the upper deck and still leaves sufficient headroom below.

The construction is shown in the accompanying illustrations. As shown in the floor plan of the lower deck, longitudinal seats are placed at each side of the well just described, while the remainder of the lower deck seats are set crosswise. The upper deck seats are set back to back longitudinally, with a cross seat at each end. All of the seats are to be upholstered in full leather, and the longitudinal upper seats will be divided into two-seat sections by arm rests.

Only seven steps are required to reach the upper deck. This, of course, is accomplished because of the low deck height. The first step riser is at the center line of the body, leaving the platform clear between this point and the entrance door.

At the front end of the body there is a door under

the control of the driver, so that the bus may be operated by one man, if desired, or so that loading or unloading may take place at both ends of the vehicle. Folding seats are placed adjacent to the front door so that they may be let down into position if it is not used. By this means a seating capacity for 61 passengers is obtained, 30 on the lower deck and 31 above.

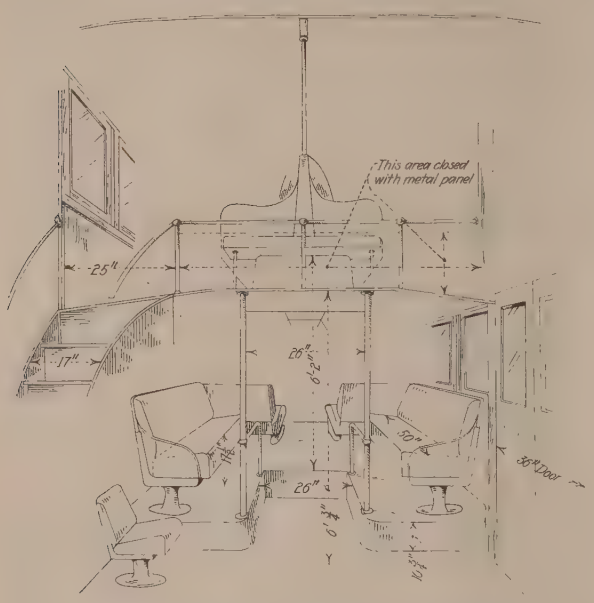
Some of the principal dimensions of the body and chassis are given in the accompanying table.

To improve riding qualities by carrying the passenger load as far as possible between axles, the wheel base is made 230 in. Even with this long wheel base, it was considered essential to hold the turning radius to a minimum, in order to enable the buses to be manipulated in city streets. The radius specified is 35 ft. 11 in. to the left and 32 ft. 11 in. to the right.

The deck between the lower and upper compartments will be made of steel with no carlines, and will be supported on vertical stanchions in the body. The roof of the top compartment will be of Haskelite. Outside panels of the body will be No. 14 gage aluminum, while the dash panels, rear panels and upper deck curved panels will be 20 gage body steel.

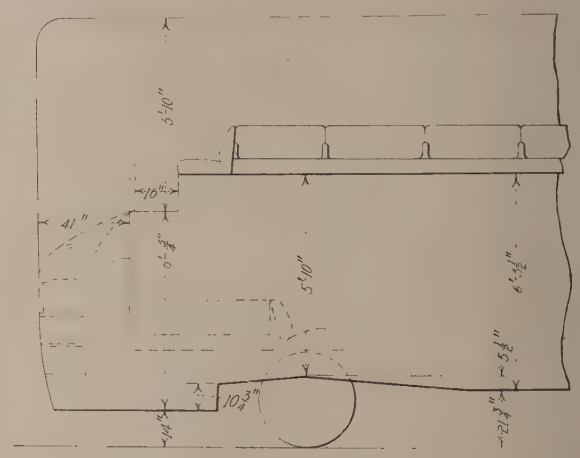
Inside finish of both the upper and lower compartments will be polished mahogany. At the front end of both the upper and lower decks full width plate glass windshields are provided, so as to give maximum visibility forward to passengers. The side sash are

Over-all length over bumpers	29 ft. 6¾ in.
Over-all length of body	23 ft. 9 in.
Over-all width	94 in.
Over-all height (loaded)	12 ft. 8 in.
Over-all height (light)	12 ft. 11 in.
Headroom inside body:	
Lower deck	6 ft. 3½ in.
Upper deck	5 ft. 10 in.
At entrance door	6 ft. 0½ in.
Over ramp at rear axle	5 ft. 10 in.
Floor height from ground (loaded)	21⅜ in.
Front entrance step from ground (loaded)	14 in.
Weight without load	14,000 lb. max.
Distribution of load:	
Front axle	42.4 per cent
Rear axle	57.6 per cent



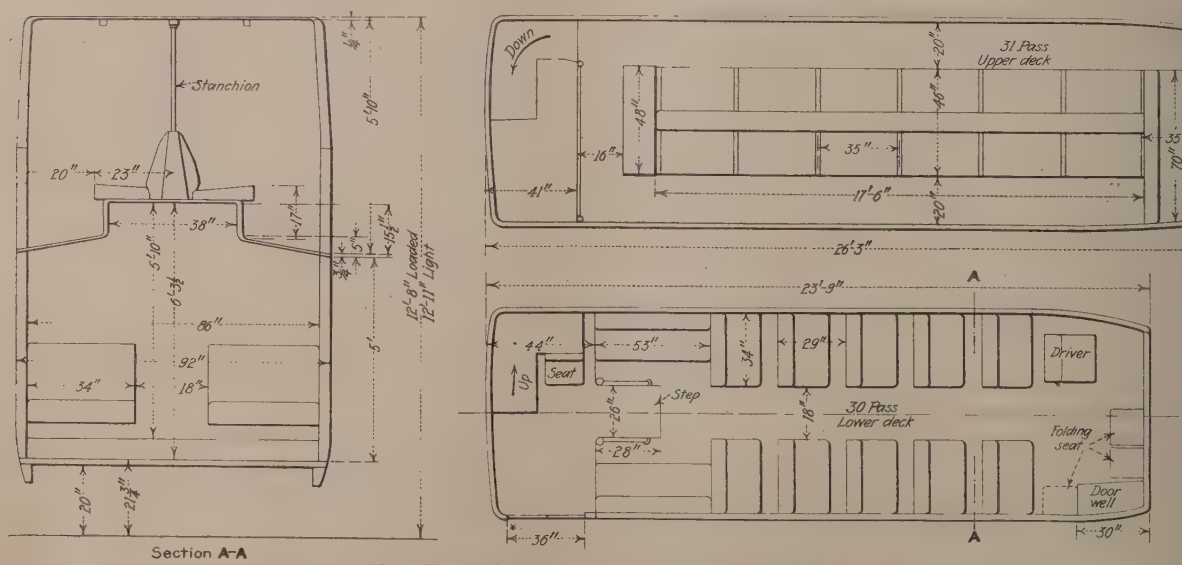
Perspective Section Through Rear Vestibule

A flush passageway across the top deck is made possible by the well immediately below in the body floor.



Longitudinal Section at Rear End of Body

This shows how the monitor is cut off to form a 16-in. wide passage across the top deck while maintaining the necessary headroom below.



Floor Plans of Both Decks and Section Through Bus

Seating capacity for 61 passengers is provided. Both upper and lower deck seats are full upholstered in leather.

made large, so that when they are open in the summer the conditions will approximate an open deck.

Particular attention has been given to heating and illumination. Exhaust gas will be carried from a regulating valve through thin walled tubing around both sides of the lower deck. Registers in the top of the monitor will allow warm air from the lower compartment to pass up between the backs of the longitudinal seats above, so as to heat the upper deck.

Eight 15-cp. dome lights will be installed in both the upper and lower compartments. This, combined with white enamel ceiling finish, is expected to give ample illumination to insure passenger comfort.

The new buses are to be built by the Yellow Coach Manufacturing Company and will be mounted on that company's special Model Z chassis. The engines will be of the six-cylinder sleeve-valve type, 4¼-in. bore and 5½-in. stroke, developing 105 hp. at 2,000 r.p.m. Tires are to be 34x7-in. pneumatics, those on the rear wheels being duals.

Government Ownership Is Destruction*

The Proposition Is Stated and Then Its Meaning Analyzed in All Its Aspects—Effect Upon Our Democracy—It Would Mean Higher Rates for Utility Service, Higher Taxes Too, and Poorer Service —Employees Would Be Far Worse Off—Experience Elsewhere

By Herbert Hoover
Secretary of Commerce, Washington, D. C.

SENATOR LA FOLLETTE'S party proposes government ownership and operation of railway and other public utilities. The Senator emphasizes this: "I am for government ownership of railroads and every other public utility—every one." This means all railways, power, light, telephone and telegraph. The Republican party stands for private ownership, with the prevention of abuse through government regulation of service and rates or profits. Between them we must choose. Either we are to remain on the road of individual initiative, enterprise, and opportunity, regulated by law, on which American institutions have so far progressed, or we are to turn down the road which leads through nationalization of utilities to the ultimate absorption of all industry and labor.

What the Senator proposes is far more than a transitory experiment of government in business; it is a change in our social, economic, and political principles that will react to revolutionize our government itself.

The Proposition

In its immediate form this is a proposition that the government should buy and run the railways, electrical and other utilities, valued by official commissions at about $40,000,000,000, with 2,700,000 employees, requiring $2,000,000,000 annually for bond interest, with an operating budget of $10,000,000,000 per annum. To keep pace with natural growth these concerns must spend $2,000,000,000 of new capital yearly for extensions. This is a financial transaction and a venture into business of a magnitude never before undertaken by any man or by any government, democratic or otherwise—except in Russia. Surely before we embark on such a voyage we should look into the possibility of profit, examine the chart of the place where we are going, and consider the capacity of our vessel to carry the cargo.

It is for the American people to decide. If they are to decide rightly they should have the reasons set before them in terms of sober economic and social thought, not in vituperation and appeals to hate. I accredit the sincerity of the advocates of these propositions, and I believe they have the manhood to credit ours. There is but one consideration—public interest. If I believed for one moment that this adventure would reduce rates, that it would produce better service, that it would decrease taxes, that it would benefit the employees, that it would maintain discovery, initiative and advance in the development of these services, that it would not wreck our democracy, that it would strengthen the foundations of social and spiritual progress in America, or even that it would do a few of these things, I would unhesitatingly accept this proposal, stupendous as it is.

But I do not believe it. I am convinced not only from the experience of our own country, but from the attempts made abroad, that government operation is a step backward in every one of these propositions. It is the négation of progress. America has found the true road of advancement in these enterprises through sustained initiative and equality of opportunity to our people, with public control to prevent abuse. Our salvation consists in following this line with increasing intelligence and devotion.

Our Present System of Utility Control

Much of the present agitation is based upon conditions not as they are today but as they were a generation ago. There were then great abuses that called for remedy. The Republican policy of public regulation and the historic moral upheaval to which Theodore Roosevelt contributed more than any one man cured the worst of these evils and created the machinery of government to meet the rest. Theodore Roosevelt was the enemy of government ownership and the advocate of public regulation.

There is scarcely a single utility today that is not under public control through some governmental commission, local or national. These commissions today fix the rates, the issues of stock, the time tables, the car service, the profits. Our great national water powers are reserved to the government through 50-year leases, under public control. And our commissions are not alone preventing abuse; they are maintaining initiative, enterprise and progress in our railway and other utilities, as witness their enormous growth and constantly improving efficiency and service.

Regulation has, through stabilizing rates, reduced the cost of capital by increasing the security for the savings of our people. From this security and within our generation there has come a new tide, and that is toward popular ownership as distinguished from government ownership. These enterprises are no longer owned or controlled by a few. One of our great service coporations has nearly 400,000 stockholders, another more than 200,000. The power companies have more than 700,000, their bonds are directly and indirectly, through our mutual insurance companies and savings banks, in the hands of literally tens of millions of owners.

A silent revolution is transferring ownership to the public. Moreover, the new generation of administrators of these enterprises has firmly grasped its responsibility to the public. Indeed, there are deep and promising currents originating in our economic life driving toward a mutualization of public and private interest, employer and employee interest, with promise of a new period in industrial development. There has been a genuine growth of business conscience and service, and this growth is far more precious than any amount of legislation. Of those occasional individuals who fail to manifest this sense of public responsibility I could speak with bitterness, for they are the real stimulators of socialism. Such men give the cause for the despair that government ownership is the only relief

*Radio address delivered from Washington, Sept. 29, 1924, and broadcast over nationally interconnected stations.

from their actions. But we do not put the whole people in jail because of occasional murders.

And from it all we have by and large evolved the best actual service to the people from utilities that there is in the world. It may not be perfect, but no one who has tried a European government railway or a telephone needs conviction of our superior service. Moreover, there is a diffusion of service and use among our people double and treble the proportions to the population of any other country. A larger proportion of our homes have electric lamps, a larger proportion have telephones. More of our people travel by rail and more miles. We ship more goods per person, and our workmen have more power at their elbow than any other workmen in the world. The wages in our utilities give the highest standard of living and comfort on the earth. If our utilities were dominated by the malignity that some contend, these things would never have come about.

To whatever extent we have failed in control, whether it be through overcontrol or through insufficient control, it is a challenge to us to perfect our system. There have been mistakes and will be others. But I may say at once that if the American people have not the intelligence, if they have not the character, if they have not the political mechanism by which private competition can be maintained and yet abuse can be prevented, then they do not possess the character or the political mechanism by which they can undertake the gigantic operation of these enterprises.

Effect of This Undertaking Upon Our Democracy

Neither our national nor our state governments are planned or equipped for the task of government operation of utilities. Nobody ever tried it on our stupendous scale of a continent, but there are governments which, in their smaller scope, do operate in some fashion some of their utilities. Since it is always in worse fashion than ours, their example is no temptation to imitation, but it does illustrate that some governments, on some scale, in some fashion, can operate some of them. But none of them has ever attempted to operate all the utilities, nor does any one of them possess 15 per cent of our railway mileage, or 6 per cent of our power, or 15 per cent of our telephones, and so on.

I would also have you observe that these governments all have much more concentrated power and responsibility than we have ever been willing to grant to our government. The fathers purposely made our government to a different model, for a different task. They divided power and responsibility, where business must concentrate them. They thought liberty and individual rights worth safeguarding even at some cost of efficiency. But this very fact necessarily leaves to private enterprise many things which other nations can, if they prefer, do through government after a fashion. On the governmental side, the result has been one of which we are as proud as other peoples are envious. On the business side, the accomplishment far surpasses anything they know. Through the one, we have liberty; through the other, enterprise and decisiveness. Our form of government, which we have developed over 150 years, has assured us a measure of freedom and progress hitherto unparalleled in political history. The more we cherish it the less ready we should be to load it with a burden for which it was not built. To bear this load the Constitution would need to be rewritten in a score of places, until it was no longer our democracy. Above all, it would change the major thought and purpose of our government into the making of money instead of devotion to the preservation of basic human liberties—a big enough job in these times.

The very first and fundamental difficulty that our form of government presents is the relation of the states to the federal government. For in our plan we conceive that liberty requires a great measure of decentralization in authority. If these public utilities are to be operated by the federal government we at once deprive the states of their measure of authority and control over railway, power, light and communication companies—we make the service in these states dependent upon the will of Washington, thousands of miles away. It is an impossible conception that we give the states the power to regulate the business of the federal government as they now regulate these services. Or are we going to divide the railways and power and communications into 48 systems, each ending at the boundary of its own state? Whichever we do will crack the timbers of our government.

If we pile these $40,000,000,000 of business and 2,700,000 employees upon the government, one of two things happens. Either the 530 members of Congress or the hundreds of members of state legislatures become their real boards of directors, or, as it has been claimed, these great businesses could be placed in the hands of non-partisan commissions or government corporations, somehow free from politics and the dead hand of bureaucracy. Neither alternatives will work. If we were to set up such agencies, so free from restraint of the Congress and legislatures as to accomplish these objects, we would have created gigantic despotisms controlling the well-being of our whole people—and incidentally, controlling the very election of our officials.

As a matter of fact, we can do nothing of this kind if we are to maintain a democracy. We cannot have a democracy and deprive our elected representatives of their control of government investment, their power to fix salaries and wages, their independence in the investigation of the conduct of public officials. The reservation of any or all of these powers renders any kind of a commission subservient to the members of legislative bodies, no matter what the theory is. When they are subservient to elected officials, politics will be their daily need. Above all, the members of our legislative bodies represent districts, states, parties, and groups of opinion. Each member is expected by his constituents to look out for their local or group interests first. They have to be elected upon the results they obtain. Partisanship, "log rolling," and politics would be the inseparable accompaniments of administration. No great business can be efficiently administered by such a board or such a basis of choice. We shall convert business into politics, and surrender efficiency for spoils. If we distributed railway extensions as we distribute public buildings; if we located electric power plants as we locate reclamation projects; if we divided up public industries generally as we share river and harbor improvements and army and navy stations—then as surely as night follows the day facilities will be wastefully provided for those districts or groups which are politically strong, and they will not be adequately provided for the districts or groups that are politically weak.

Also these legislative bodies would have to deal with group pressures striving for favors in rates. The relative rates will affect the prosperity of every city and every section, every group and every industry. States, counties, farmers, town dwellers, every group of manufacturers will press their representatives to secure an advantage, and legislators will inevitably honestly favor their constituents. Every experience to date indicates that the taxpayer will pay for the resulting concessions. Because the government had not the courage to increase railway rates during the war the taxpayer made up a $1,600,000,000 operation deficit. A neighboring government yielded last year to the demand for lower rates on the government railways; it is paying the deficit from taxes today.

By this vast venture that is proposed to us we would at once increase the total of national and local officeholders up to about 6,000,000. The rightful interest of this group is in higher pay, constantly better conditions of service, and better standards of living. The rightful public interest will be to hold down rates and taxes. These interests will clash, and their clash must fight itself out, not on grounds of economic bargaining between labor and employer, but in the political arena. The voting strength of this mass of officeholders, their wives and dependents, will be more than 25 per cent of the whole. It is the balance of political power between parties in every district. Either every member of the legislative bodies will be elected to do the bidding of this bureaucracy or will be elected by a public in rebellion against it.

No commission or any body of administrators can carry on these vast operations efficiently in this political maelstrom. We shall lose most of our democracy in the storm.

Higher Rates to the Public

Unless the federal or local governments can give the public lower rates, there is no use undertaking the gamble.

If the government is to reduce rates it must do so either by the saving of private profits or by reducing operating expenses or lumping them on the taxpayer During the past four years the railways have on the average earned less than 4 per cent on the I. C. C. valuation. Even if this value were reduced by 25 per cent, they would have earned only 5 per cent. Our electrical utilities are regulated at earnings be-

tween 6 and 8 per cent upon their invested capital. The government could not borrow the huge sums necessary at less than 5 per cent.

In a sale to the government the constitutional requirements would, for various legal reasons, probably result in a much larger sum than the $40,000,000,000 of present valuations by commissions and others.

Moreover, the wasteful distribution of the $150,000,000 of capital invested annually in the Post Office, Reclamation Service, Shipping Board, rivers and harbors and roads would not be a patch on the waste in appropriations when our legislative bodies get a chance to handle $2,000,000,000 per annum of new capital outlay. For all these reasons I am convinced that interest charges alone to the government would be larger than the present utility profits, and no economy lies there. Rather the way of the prodigal.

Nor can the government operate as economically as private enterprise. If we take over nearly 3,000,000 new employees into public service we must put them under an airtight civil service, to be hired by a separate commission and promoted by seniority, and at once we have created a bureaucracy. Otherwise, we would have nearly 3,000,000 jobs to be given out and a political debauchery unparalleled in all history. There are certain inherent qualities of bureaucracy in its deliberative action, the necessity to maintain joint responsibility, its enlargement of "red tape" designed to prevent error in judgment and conduct, all of which are perhaps an advantage in purely governing functions, but they become disaster when applied to the rapidity of movement vital to business and service. Numbers increase for every task. The alternative is political favoritism. And at the top, where exceptional talent and genius must be had, neither seniority, nor competitive examination, nor politics will secure or find it. It is one thing to choose a postmaster but another to choose a railway president. These things are the actual and daily experiences of our public life? and if a hundred years of this experience is not proof that the efficiency of government operation must always be below the efficiency of private enterprise, then the public is incapable of conviction.

We can get some experience of this loading of employees from government operated railways in the countries during the last ten years as to the results of these forces. For instance, the number of employees of Italian railways has increased 50 per cent against an increase in traffic of 18 per cent. German employees increased 20 per cent against 5 per cent increase in traffic. Danish employees increased 48 per cent with 20 per cent increase in traffic. Swedish employees increased 10 per cent with a 25 per cent decrease in traffic. Norwegian employees increased 62 per cent with an increase in traffic of 37 per cent. Compare these figures with American railways, where the number of employees is about the same today as ten years ago against a 10 per cent increase in traffic. American railways are the only railways on earth showing increased efficiency in the last ten years. If we had increased our employees by such percentages it would cost $600,000,000 per annum or an increase of 10 per cent in rates. For the rates today are in the long view based upon costs.

With all these forces in action our cost of operation would increase. If we make rates to equal costs our rates will rise—not fall. Unless, of course, the taxpayer pays the deficit.

Poorer Service

Nor will the public secure better or more impartial service under government ownership. The action of all government officials must be limited by a vast amount of regulation and "red tape." Therefore, government employees never can yield that spirit of accommodation that employees of private enterprise must furnish in order to maintain the repute of their competitive enterprise and its standing in the community.

A much larger issue lies in the inequality with which facilities will be provided over this continent 3 000 miles wide. It is mighty important to have cars and kilowatts when they are needed. The economic life of somebody is stifled every time they are not available. Every fit of national economy will cause them to fall behind future need. Every district and group of the politically weak will have to do without some measure of their need. Today there is remedy for failure in service; there is no remedy against the government.

Increased Taxes

Another question worth examining is the direct and indirect tax burdens which will be imposed upon the public, assuming always that rates pay operating expenses and interest. The addition of $40,000 000,000 to the national debt differs much from the debts of many thousand of private enterprises now comprised in these public utilities. The failure of a single private enterprise is a loss to its owners only, but with this entire investment transferred to the government every citizen would pay every loss of capital, directly or indirectly, from taxes or rates, whether he liked it or not. When individuals enter upon a foolish project they pay for it, but if the government does the same thing both the foolish and the wise must pay for it.

Today the combined utilities contribute about $600,000,000 in taxes to the federal and local governments. It is unlikely that in government operation our federal government will pay taxes to the states or the states to counties out of utility rates. Thus the local governments would need to find other sources of revenue. If the customers of these utilities and the taxpayers were identical in their participation it would not matter, but it happens that utilities have a larger ratio of investment and taxes in the farming districts than they have in the big cities. It would damage the farmer of Massachusetts but 3 or 4 per cent to denude the state of utility taxes, but it would increase taxes 40 per cent in many agricultural counties in other states.

And above all, if the history of other governments operating utilities counts, the inefficiency in government would not be taken up in rate increases, by which the actual user pays, but by lumping it onto the taxpayer.

Employees Worse Off

The next question to examine is whether the employees would benefit by being incorporated into the government service. The first and foremost result of such an operation would be a dispute over the right to strike. It is by no means certain that a government can continue as a government and admit the right of government employees in vital services to strike against it. Nor can legislative bodies delegate the right to settle wages and salaries to any commission or they will have delegated their control over expenditures, which is one basis of democracy. In any event, under government ownership employees must in final analysis bargain with legislative bodies, and bargaining will rest not upon economic need or economic strength, but on political potency. The present federal employees, denying themselves the right to strike, have just now, after eight years, succeeded in getting some of their deserved increase in pay. The public utility employees have had them already for years. Their wages are today the highest real wage in the world. Some have assumed that the political strength of this great mass of employees will enable them to dictate the election of legislative members and thus secure their desires. This means the creation of another bloc, the arraying of class against class, perhaps the most dangerous tendency in our politics today.

It substitutes internal pull and external politics for individual endeavor. It puts a damper on achievement, a premium upon wire-pulling. It penalizes whole-hearted devotion to work.

But there lies even a broader issue of the ultimate results to the freedom of labor. Upon it I can do no better than to quote from Mr. Gompers in a speech at Montreal in June, 1920:

"I believe there is no man to whom I would take second position in my loyalty to the Republic of the United States, and yet I would not give it more power over the individual citizenship of our country. . . .

"It is a question of whether it shall be government ownership or private ownership under control. . . . If I were in the minority of one in this convention, I would want to cast my vote so that the men of labor shall not willingly enslave themselves to government authority in their industrial effort for freedom. . . . Let the future tell the story who is right or who is wrong, who has stood for freedom and who has been willing to submit their fate industrially to the government."

Invention Will Decline

The essence of progress is that we shall have new mechanical invention, new ideas in administration, new developments in service. The proposal that we are examining here would destroy all competition. By the same operation we destroy the competitive market for new invention and new ideas, for their value is determined by competitive bidding. "A" must sell his invention to the highest bidder. If "B"

demonstrates unusual administrative ability he has an enlarged market for his services with competitors. The "C" railway experiments on a new improvement to attract customers. Neither Congress nor administrators can appraise the value of these things. The notion that men would give from a sense of public service will never be realized until we reach that dubious millennium when desire for individual distinction and reward hath passed away. America has made the most marvelous advance in the history of man in the technology and administration of transportation and applied electricity. Can any one believe that this invention, this courage, this application, this stimulation to genius that our nation has brought forth would ever have been developed under a board of directors of 530 members of Congress and hundreds of members of state legislatures? Government utilities in other parts of the world get their technology from use. So far as I am aware no single vital invention has ever come out of government-owned utilities. If we are to assume that there will be no more need for else than routine operation we may abandon this argument. But science is only at the threshold of its house of wonders. It may even solve methods of transportation that would cause the abandonment of railways to the taxpayer as it would have done to a nationalization of the stage coach.

Experience Elsewhere

The classic domestic argument against all this is the postal service. There are, of course, conclusive reasons why that service must remain a public function. And it does carry the mails well, at a cost probably 25 per cent higher than private enterprise could do it. But remember that the postal service pays no interest upon the vast sum of capital invested in its equipment and buildings. It pays no taxes on these structures. And how is that capital investment in public buildings distributed? Notoriously on the reverse of business principles. How are the rates allocated to different classes of service? By the pressures of organized groups. Postal employees are always in difficulties with their board of directors—that is Congress—as to pay adjustments. We are here proposing to amplify the shortcomings inherent in the postal service in the direct ratio of the post office budget of $600,000,000 to an annual budget of $10,000,000,000 in the utilities, not with 300,000 employees but with 2,750,000 and a business of infinitely greater technology.

Our national shipping is a daily sample of all the arguments I have given, and more. We paid $3,000,000,000 of the taxpayer's money for a fleet—some part of it was truly for war purposes—but we have written it down 90 per cent in six years to $300,000,000; and if the accounts were based upon true costs with interest and depreciation, we should find that we are losing over $100,000,000 of the taxpayers' money a year in operating it. Yet private shipping is earning profits. Nor is this the fault of the Shipping Board; it is inherent in the system.

Our government has some necessary power interests of its own. The building by the government of great control dams, as on the Colorado, the St. Lawrence, and elsewhere, whose primary functions are water supply, or control of flood, or irrigation, or navigation, and where power is a by-product, is a far different thing from the government's going into power production and distribution as a business. Some of our municipalities are faced with these problems and sometimes they also have a desire for business adventure, but the withdrawal of more than 400 municipalities from efforts to run utilities is itself an indication that even under local concentration of authority the results are doubtful enough.

I could at great length enter upon a discussion of the costs and failures of government ownership and operation in our own and in other countries. I could display more facts and figures with regard to the Canadian, German, French, Italian, and Australian government of railways. I could discuss the inability of the Italian government to find any buyer for its railways when it tried to get from under their intolerable burden. I could name states where government ownership has been brought about by owners and creditors to get rid of bad investments. I could compare the real accounts of foreign government adventures into power with those of our private enterprise. I could enter upon the tendency to disguise real results by accounting methods. I would show by example not alone the economic effect of government ownership but the effect upon government itself—and upon politics. I could even enter upon comparison with the complete nationalization of industry in Russia. But as grievous as all these failures have been, there is still the fact that it is our government and institutions and our people that we are dealing with and not those of foreign countries—and our institutions, designed more for liberty and less for business, would fare far worse.

We have constructed our government upon the theme that its major purpose is to preserve human liberty amid the changing social and economic scene. If we divert it to the changing of money we shall have lost sadly for the future.

And paralleling and strengthening every argument against government operation is one insistent note. That is the preservation of the vital initiative and enterprise of our people. This is the mainspring of progress. Bureaucracy is the dead hand on initiative. Government can correct abuse without entry into business. If it cannot, then democracy shall have failed.

We are asked to abandon all that we have builded as a land of opportunity by injecting into it an economic patent medicine from Europe. Socialism may have a place with some of the nations of Europe because of their failures to provide freedom, opportunity, and service. It has no place with us. We are building here a form of social organization of our own. We differed with European ideals 300 years. We have today in America the widest extended and most efficient utility services in the world. We have developed an effective method of controlling abuses. We contribute more to invention and improvement than all other peoples combined. We are asked to abandon all this and embrace new social ideas, increase our cost of service, decrease our national efficiency, undermine our democracy, destroy the fundamentals upon which our nation has become great. This is not progressive, for it is not progress. It is destruction.

American Association News

Big Crowd at Metropolitan Meeting

New Section of the A.E.R.A. Formed in New York—Co-operation the Keynote of Several Short Talks—Organization Perfected and Officers Elected

UNDER the direction of C. E. Morgan, chairman committee on community sections, American Electric Railway Association, a new local organization was formed in New York City on Sept. 23. Feeling has been growing for some time, according to Mr. Morgan, that the men engaged in the electric railway industry in New York City and its environs did not know each other well enough. Experience had shown that specialists connected with one railway seldom knew personally the men doing the same kind of work on the other properties in the same city. With a view to changing this condition it had been suggested that a metropolitan section of the American Electric Railway Association be formed. The enthusiastic response of the railway men in the metropolitan district to this idea was shown by the attendance of approximately 300 at the meeting.

After a brief discussion concerning the relative merits of the names "New York Section" and "Metropolitan Section," it was decided to adopt the latter name so as to include within the scope of the organization those railways outside of New York City but lying within a 25-mile circle. The opinion of the meeting favored having six directors for the section, two to be elected each year and holding office for three years. The constitution and by-laws adopted followed closely along the lines of those suggested by the community section committee of the A.E.R.A.

Three ways in which public utilities can profitably co-operate were explained by William L. Ransom, formerly counsel for the Public Service Commission of New York and now

general counsel for the Consolidated Gas Company, New York City, and other utilities. There is need for local organization to encourage team work between the companies that constitute the industry. An unfortunate stand taken in court by one company today may lead to the embarrassment of the entire industry at some future date. The individual companies should not take short-sighted views and think only of their own immediate gain, but should rather work with their fellow companies toward the goal of the eventual greatest good for the greatest number.

Commission regulation, Mr. Ransom said, is not the final ideal solution of the public utility question. However, it is far ahead of anything heretofore tried and is certainly the best method in sight at present. Public utility managements should therefore try to cooperate with the commissions rather than to fight them and put obstacles in the way of their investigations.

A third valuable form of co-operation is that between the utility and the investors so that they have a better understanding of its problems and difficulties.

Too many secrets, in the opinion of R. P. Stevens, president Republic Railway & Light Company, has been the cause of many of the difficulties of the industry. Mr. Stevens said that the time had passed for secret methods and that frankness and openness concerning the details of the business should be the keynote of present-day policy. James W. Welsh, secretary American Electric Railway Association, read a letter from Britton I. Budd, president of the association, in which Mr. Budd enthusiastically indorsed the formation of the Metropolitan Section.

"Pick the bugs off" was the theme of a lively talk by Labert St. Clair, director of publicity A.E.R.A. He told how the farmers in his home state of Indiana had once been much troubled by a plague of potato bugs. They first sought advice from their lawyers as to what could be done, but the lawyers could not solve the problem. Then they sought advice from agricultural experts, but the bugs continued. At last some one suggested that they try picking the bugs off the plants. The thing for the utilities to do, Mr. St. Clair said, was to begin to "pick the bugs" off the service and not to rely too much upon lawyers and experts to get them out of their difficulties. A suggestion made by the same speaker was that the watchword of the Metropolitan Section should be "dig" rather than "co-operate," a word with so many round letters in it that it rolled right out of the mind of the average railway man.

Brief talks were given also by F. G Daniell, engineer New York Transit Commission, who was one of the originators of the idea of forming a metropolitan section, and by C. R. Ellicott, Westinghouse Traction Brake Company.

Officers elected by the section were: President, William E. Thompson, superintendent of transportation Third Avenue Railway; first vice-president, C. S. Klumpp, general superintendent Hudson & Manhattan Railroad; second vice-president, J. F. Eagan, superintendent rapid transit lines B.-M. T.; third vice-president, C. H. Greenidge, J. G. White Company; secretary, A. L. Hodges, assistant secretary Brooklyn City Railroad and treasurer G. N. Ord, secretary Ellcon Company.

Directors elected for one year were C. H. Beck and M. R. Boylan; for two years, F. G. Daniell and C. E. Morgan; for three years J. A. McCartney and P. W. J. Smith. The members of the program committee, of which Mr. Klumpp is ex officio chairman, are R. F. Carbutt, A. J. Manson, James Waldron, J. W. Colton and A. H. Sisson. On the membership committee with Mr. Eagan as chairman are J. W. Hulme. J. J. Jordan, F. J. McMurrer, L. T. Carter, C. W. Gillespie, George Siebert and William B. Wheeler. The finance committee, of which Mr. Greenidge is chairman, will have also the following members: W. H. Gibson, H. Vanderveer and Ross S. Hayes.

Association News & Discussions

Careful Selection of Men Is First Essential of Safe Operation

Many Railway Men Participate in National Safety Congress—Hazards of the Bus Are Discussed—Precautions Taken to Prevent Accidents in Substations Are Described

SUCCESS far beyond the hopes of the officials of the National Safety Council attended the thirteenth annual meeting, held at Louisville, Ky., Sept. 29 to Oct. 3. Large exhibits of safety equipment of various kinds, including street traffic signals, etc., added to the interest of the occasion.

The sessions of the public utilities section and of the electric railway section, including a joint session on Wednesday, proved particularly interesting and beneficial. It was evident at the railway sessions that street railway and bus men are much interested in this work, and it was stated that the safety movement has materially reduced accidents in spite of a considerable increase in use of motor vehicles.

Throughout the sessions the statement was frequently reiterated that the right place to start safety work is in the employment department, by choosing only capable men. Then the company must get behind the safety movement, push it, organize its departments, recognize the work, give credit to the men, listen to suggestions, work to improve conditions, and take the attitude that accidents are serious, and not treat them as incidentals.

The amount of discussion following the various papers, and the many questions asked, indicated the interest which superintendents, managers, and safety council managers have in this subject. At every railway session there were a hundred or more present, some coming from as far west as California to attend the meeting.

James P. Barnes, president Louisville Railway, presiding as chairman of the meeting, answered a question as to whether or not a town of 25,000 was large enough for a safety council by saying that there are a lot of utility companies in towns of that size which would not be "in the red" if they had councils.

The opening session on Tuesday was largely given over to a discussion of the hazards of motor bus operation. A paper on this subject was presented by R. N. Graham, manager of railways Pennsylvania-Ohio Electric Company. An abstract of his paper appears elsewhere in this issue. This was discussed by Guy R. Radley, safety engineer the Milwaukee Electric Railway & Light Company, and by G. B. Powell, secretary of the Kentucky Carriers, Inc. All of the speakers advocated getting the right class of operators at the start, careful examination of many men in selecting a few, schooling these men before allowing them to operate buses, and constant safety training thereafter.

Reports indicated that in bus operation as well as in street car operation accidents have been showing material reduction since safety movements were started. It was pointed out that the bulk of accidents happen to children under the ages of ten years, and to persons over sixty, showing that youth and old age create two hazards that have to be watched at all times. G. B. Powell of the Louisville Railway told how a rather poor accident record for the Kentucky Carriers, Inc., prior to December 28, 1923, had been improved by energetic work. Between that date and August 25, 1924, the company operated 345,008 bus-miles

over congested city streets without a single preventable accident, or one in which the driver was at fault. Such accidents as did occur came from autos running into the rear end. With a good man on the front, a strong bumper and a "stop light" on the rear accidents for which the company is responsible have been reduced to a minimum.

Mr. Noonan, supervisor of accident prevention Chicago Surface Lines, explained how in a demoralized town, where at the outset even the union was opposed to safety work, accidents to trainmen have been greatly reduced. J. H. Handlon, claim agent Market Street Railway, San Francisco, described results of safety work in reduction of accidents. Similar reports were given for Providence, St. Louis, Nashville, Youngstown, and other cities. At the joint utility and railway conference on Wednesday, L. H. Palmer, vice-president and general manager United Railways & Electric Co., Baltimore, talked on "The Place of the Electric Railway in Community Safety Extension." He told why the street railway should develop the movement, and what it means to the company that does so.

Safety in the substation was the subject of a paper by Homer Niesz, manager industrial relations Commonwealth Edison Co., Chicago. An abstract of the paper appears elsewhere in this issue. R. O. Mason, Philadelphia Electric Company, made the last address of the session, dealing with highway traffic problems.

Award Systems Favored

The report of the committee on award systems was presented by R. R. Hadsell, general superintendent of transportation New York State Railways, Rochester. Eighty-three railway companies out of 120 to which the committee had sent a questionnaire responded. Of these 44 companies had no experience with safety bonus or award systems. Thirteen companies actually had in operation such a system, 6 had adopted the practice of giving dinners to groups of their employees, and 15 expressed themselves as decidedly opposed to the bonus. Several companies previously had a bonus scheme but had discarded it.

The contention of the group opposing any bonus system is that it is just as illogical to pay a man a bonus for operating without accidents as it is to offer him a prize for being honest. Another objection advanced is the tendency to increase the number of "no report" or "blind" accident cases. Equitable distribution of the awards is given by some companies as a difficulty connected with giving a bonus.

The companies which favor the bonus contend that it has resulted in a reduction of accident costs, due to fewer accidents and less severe ones. Their experience would seem to indicate that "no report" cases are not more numerous under the bonus system. However, the committee is not prepared to go on record as asserting this to be an undeniable fact.

The methods of distributing the bonus are so varied that they can hardly be summarized. However, it appears that many companies consider a cash bonus to be the most effective. Some companies believe that in order to maintain the interest of their men the bonus must be paid at short intervals. The opinion of the committee is that the form of award is not so vital to its success as is the manner of its administration. The bonus must be so distributed that there can be no feeling of discrimination. The foundation of success of any award system depends upon the bond of good faith that has been established between the company and its employees.

On Thursday morning a paper on "Interesting School Children in Safety on the Streets" was delivered by Isaiah Gordon, Bureau of Safety, Chicago. An abstract of this paper will appear in a future issue. The discussion on this subject was led by J. W. Oliver, safety engineer Chicago, North Shore & Milwaukee Railroad.

Safety Rules in Substation Operation*

By Homer E. Niesz
Manager of Industrial Relations Commonwealth Edison Company, Chicago, Ill.

HAZARDS met with in substation operation are limited by the character of the work that operators are called upon to perform. The repair work performed by our operators is confined to minor repairs or adjustments on low-tension or on non-electrical apparatus. Operators are not required or permitted to clean high-tension equipment except the dusting of outside surfaces of inclosed apparatus, this work being done by a separate trained cleaning crew. Operators are also forbidden to go upon traveling cranes for any purpose or to clean or change lamps or fixtures more than 16 ft. from the floor.

The most serious hazards incident to substation operation and the ones to which exposure is most frequent are those electrical hazards met with in the operation of high-tension equipment. Our experience indicates that the following are the most common: Opening of disconnecting clips while oil switch in series therewith is closed and under load; accidental contact on live line or bus terminals with test circuits or ground connectors; closing of hand-operated oil switches.

The opening of disconnecting clips carrying load is usually the result of failure properly to identify the switch before proceeding with the operation. It may be due, also, to failure of the operator to determine that the oil switch is closed. In determining the open or closed condition of oil switches our operators are instructed to place no confidence in the indication of pilot lamps or on the position of operating clips of oil switches. In our training of operators we emphasize very strongly the importance of thorough familiarity with the mechanism of each type of oil switch they are required to operate, to the end that they may unfailingly recognize, from the position of the switch mechanism, its open or closed condition.

Accidental contact against live high-tension terminals is also frequently due to the operator's failure properly to identify the apparatus. The hazard is greatest where bare live high-tension conductors are in close proximity to that portion of the apparatus which is dead for test or grounding. Such conditions exist frequently in obsolete or poorly designed construction, and in dealing with it we insist that all live conductors be killed before proceeding with the work. The hazard to the operator of applying ground connectors to live lines and buses has been greatly reduced where the grounding is done through the oil switch and the final operation in grounding consists of closing the oil switch by remote control.

Closing of hand-operated oil switches is a very serious hazard where there exists the possibility of closing the switch into a ground or other short circuit. In our industrial substations where a number of hand-operated oil switch installations still exist the closing of such switches is forbidden until the condition of the circuit is known to be safe.

Other electrical hazards than those incident to the high-tension equipment are: Opening low-tension switches carrying heavy load or short circuits (our operators are instructed to employ a length of rope or strap to avoid too close proximity to the switches); short circuits caused by screwdrivers, pliers, etc. (these result from using such tools where opposite polarities are adjacent; our safety rules instruct that opposite polarities must be insulated before work is done with tools); adjusting or removing brushes from machines in operation; proximity of person to railway circuit breakers when opening under shorts or railway machines when flash-overs occur.

Serious hazards of non-electrical nature include: Contact with revolving armatures or fans; slipping or falling from machines or other apparatus.

Accidental contact with moving machinery is a hazard that has been greatly reduced in recent years due to the systematic installation of various forms of guards. It is important that the clothing worn around moving machinery be such that loose ends cannot be caught and drawn in. The danger of slipping and falling from apparatus is minimized by providing steps and ladders for the various types of apparatus. Rubber mats securely fastened with metal binders are secured to steps and base of machines. Stepladders of standard construction are provided which have no top platform to stand on or on which tools may be left.

Safety Equipment

Safety clothing and tools which are provided by our company for use in substations consist of the following: Electroscope, for detection of high voltages; insulated stool, and heavy rubber mat (for use where insulated stool cannot be easily

*Abstract of a paper presented at the thirteenth annual Safety Congress, Louisville, Ky., Oct. 1, 1924.

used); leather gauntlets (we no longer use rubber gloves in substations on account of the danger of the rubber being burned into the flesh); protective leather coats for all high-tension operations and low-tension operations where heavy circuits may be broken; clip pullers, poles and tongs with insulated handles for opening disconnective clips and switches and removing potential transformer fuses; gas masks are provided in substations for use in entering rooms filled with smoke from burning insulation.

Improvements Needed in Bus Design

S.A.E. Discusses Advantages to Be Obtained from More Specialized and Simplified Design—Bus Man Predicts End of Railway

PRESENT shortcomings in bus design and ways in which these vehicles could be made more comfortable and attractive were discussed by the Society of Automotive Engineers at two motorbus sessions of its Transportation Meeting, on Thursday, Sept. 18, at the Hotel Pennsylvania, New York City. Lively discussions took place concerning the future possibilities of the bus and the electric railway, and also concerning the proper location of emergency exits in buses.

The first speaker, V. E. Keenan, superintendent bus division United Electric Railway Company, Providence, R. I., said it was the intention of his company to abandon within the next few weeks 59 of its 350 miles of track and to substitute buses. Electric railway service on these lines recently has not been a paying proposition and by substituting buses, which he states can be operated at 24.49 cents per mile in place of cars costing 32.09 cents, the railway expects to effect an important economy.

For the first 18 months of their operation buses were run by this company at a loss. More recently, however, the revenue has increased to a point where it is slightly in excess of the cost. In spite of the fact that bus operation on this property costs less than 25 cents per mile it is felt that very little has been done by the manufacturers to develop economical bus design. The transportation industry needs larger vehicles, to operate which will give an opportunity to earn larger profits, and simpler vehicles, to maintain which will reduce the cost of operation.

The advantages to be obtained by designing buses to meet specific operating conditions were outlined by J. B. Stewart, Jr., general superintendent Youngstown Municipal Railway. Mr. Stewart said that the entire effort of the automotive industry thus far has been concentrated on the actual sale of buses by salesmen and little or no effort has been put forth to study the conditions under which these buses would operate. Buses with a 7½ to 1 rear axle ratio have been sold for intercity service where a speed of 30 m.p.h. had to be maintained for several hours. No mechanism could long survive under the vibration resulting from such an engine speed. On the other hand, bus operators sometimes make unreasonable demands of the manufacturer. It is practically impossible to build a chassis to meet every sort of operating condition. Whenever an electric railway desires to purchase new cars or equipment it asks for quotations from several manufacturers furnishing such equipment. The latter, before they will make quotations, send either engineers to the prospective purchaser or obtain tabulated data in order to secure complete information about the conditions under which the apparatus will operate. It is practically impossible for a purchaser to secure equipment unless he has furnished this information. The manufacturers take the position that unless they know the kind of service in which the equipment is to be used, and unless it is designed to operate under these conditions, it is not fair to ask them to stand back of the equipment and make good any failures. Somewhat the same reasoning might be applied to the automotive industry.

Mr. Stewart also drew attention to the inadequacy of many of the present bus braking systems. He spoke of the advertising value of good lighting arrangements in buses. Narrower tires are used by this company in winter and special reinforced chains are used in bad weather. This, however, is not considered an ideal solution of the skidding problem.

The importance of making buses attractive in appearance and comfortable to ride in was emphasized by H. G. Bersie, engineer Haskelite Manufacturing Company. Attractive appearance, low steps and floors, wide entrance doors and aisles, ample headroom and kneeroom, comfortable seats, good riding qualities, effective ventilation and adequate heating and lighting impress favorably the prospective passenger and encourage him to ride. Efforts toward making the bus floor more nearly gastight are worth while, he said. One method of doing this is to lay paper felt on the floor and cover this with cotton duck and a layer of linoleum. Another method is to pack asbestos around the heater openings to insure gastight joints. Although there exists a need for differing types of bus bodies in various sections of the country, certain basic features of design, shapes and measurements might well be standardized. Economy of construction, easy replacement of parts and cheaper bus maintenance would result from this practice.

The need for better brakes was mentioned also in a paper by F. D. Howell, vice-president Motor Transit Company, Los Angeles. The need for standardization of casings, tubes, and chassis was emphasized by Mr. Howell. One of the harassing expenses of the bus business in the past has been due to obsolesence of body types. It is important for the industry that it have manufacturers who will standardize on such features of design and stay in business long enough so that an operator who purchases buses of a particular type will not after a few years find himself an orphan with no source of supply for repair parts.

The maintenance system of the Fifth Avenue Coach Company was described by R. E. Fielder, chief engineer. He emphasized particularly the need of delay and fuel records. With this company the system of delay reports begins with the driver, who must note every involuntary stop of a minute or greater duration. At the garage note is made of every emergency call coming from a driver on the road. Monthly summaries show the particular part, engine, axle, transmission, or the like, causing delays. Fuel consumption is carefully figured out on this system, and every day the rate for the previous day is posted on a bulletin board. When the average drops below 5 miles to the gallon the notation is made in red.

Belief that a six-wheel chassis is the coming thing in bus design was expressed by A. F. Masury, chief engineer International Motors Company, New York.

A spirited argument took place when Mr. Masury expressed the opinion that the trolley car, as it is known today, will not exist in five years. This statement was challenged by L. H. Palmer, general manager United Railways & Electric Company, Baltimore. Speaking as a member of the American Electric Railway Association, Mr. Palmer said that statements on such a subject should be exact and should be clearly presented. He objected particularly to comparisons made of passengers carried in short-haul bus service and the number carried annually on longer hauls in suburban service by electric railways. The suggestion that the manufacturers had established a system of service stations simply out of the goodness of their hearts, Mr. Palmer thought misleading, because, as a matter of fact, they were forced to it by competition.

There was considerable discussion at the meeting concerning the best way to get out of a bus after it had upset. Emergency doors at the left rear end of the vehicle were objected to by several. One engineer favored an emergency door at the center of the rear, while another advocated a position on the left-hand side opposite the driver. Passengers must break the windows and get out by that means anyhow if the vehicle turns over, it was contended, as the present-day bus framing is not stiff enough to permit the use of doors in an emergency. For that reason it was held desirable to make the windows large enough so that they could be used as emergency exits, otherwise it might be necessary to break one of the window posts.

New York Electric Railway Association

AT A MEETING of the executive committee of the New York Electric Railway Association, held last week, it was decided to hold the regular winter meeting of the association on Jan. 22 at the Commodore Hotel, New York.

Overcoming Hazards of Bus Operation*

Care in Selecting Drivers Is Better than Education After Employment—Young Married Men Preferred—Boarding Accidents Do Not Occur if Chauffeur Alights When Making Stops to Discharge Passengers

By R. N. Graham
Manager of Railways Pennsylvania-Ohio Electric Company

OUR company inaugurated the operation of intercity buses in August, 1922, and the operation of a city bus line in July, 1923. Up to Aug. 1 of this year our total mileage was 1,826,729. During this period no person has lost his life, neither passenger, pedestrian, occupant of other vehicle nor employee. Nor has any person received a major injury of any kind.

The accidents reported, including broken windows and occurrences of such nature, have averaged 25 per 100,000 miles of operation. There has been no case settled in which the cost of settlement has been in excess of $1,000; only one case in excess of $500, and thirteen in excess of $100. We have six reports where persons were struck by buses, mainly in city streets, but in no case was the injury serious and $384 was the greatest amount of money paid in the most serious case.

The first step to be taken in safeguarding bus operation is in the selection of a driver. It is far easier to avoid accidents through care in the choice of a driver than to educate an ill-equipped driver after he has been selected. The ability of a man to operate a motor vehicle depends upon age, physical health, freedom from outside worries and cares, and temperament.

In selecting drivers we confine ourselves to the age limits embraced between the years 25 and 35. Our experience has indicated to us that the man younger than 25 is not inclined to take his position seriously, is more inclined to recklessness and speed, and age and experience have not mellowed his egotism to the point where he will be patient in any and all circumstances in his treatment of passengers. Beyond the age of 35, particularly if he has spent years at other vocations than driving, he is apt to have lost that close co-ordination between mind, vision and muscle necessary to meet the critical situations that are almost certain to arise at some time in his driving career on a busy thoroughfare. There may be exceptions to both limits, but it is far better to be arbitrary than to make experiments in individual cases, which experiments are all too apt to result disastrously.

Our second qualification is that the prospective employee shall be married. I will not enter into a discussion of the reasons why a married man makes a better bus operator than a single one. I will simply say that in our experience our results have been so much uniformly better with married men that we now enforce the rule that the applicant must be married.

In the third place, the applicant must be free from defects of vision and physique. We do not enter into any splitting of hairs as to whether the defects would interfere with his usefulness as a driver. In our experience, we have had a waiting list of applicants for our positions and feel that we should have a whole man physically for this job.

An applicant being between the ages of 25 and 35, married and sound in eyesight and physique, the choice is governed by his general physical appearance, manner and bearing. A surly looking man is apt to be surly in action. A nervous, irritable man betrays the fact in being interviewed for a position, and is not suitable for bus operation. A man that is careless in his apparel and person will not appeal to passengers and is apt to be careless in his operation. These things can only be developed by a personal interview.

Operation is inaugurated with safety as the most prominent factor in the mind of the prospective employee as he takes his coach for his first trip upon the street. The word "accident" by its derivation indicates an occurrence out of ordinary or routine. If accidents are to be treated as inevitable or routine matters, then they are no longer accidents but incidents to regular operation. Notice must be taken of every accident reported. It is our practice to interview the driver regardless of the trivial nature of the accident or lack of responsibility on his part. If investigation develops the fact that no care on the part of the driver would have avoided the occurrence, the atmosphere surrounding the investigation should be that it is still a deplorable occurrence, and one showing the necessity of constant care on the part of the driver.

There is no excuse in our operation for failure to stop at a grade crossing. The penalty is discharge. This penalty is enforced regardless of previous service, freedom from accidents or general reputation. As the rule is enforced, it becomes a mechanical operation on the part of the driver, so that it never occurs to the driver not to make the stop.

In our experience we have had only two passengers who have fallen getting on or off a moving coach, yet by far the larger part of our operation is with sedan type body in which there are three doors that can be used by a passenger at the sides of the coach. The design seems well calculated to permit this type of accident. The situation has again been met by fixing attention upon the chauffeur. In our operation, the chauffeur alights when making a stop to discharge passengers or to permit a passenger to board, and opens the door in either case and closes the same. This requires the chauffeur in every case to leave his seat and the coach and go to the door involved and personally perform the act of opening and closing the door. We believe that this personal attention by the chauffeur is better than any safety device that can be secured in the way of door mechanism.

It seems like considerable work to place upon the chauffeur. The answer to this criticism is that it has been done in our operation for a period of two years and not only results in freedom from this type of accident, but is treated by the passenger as an act of courtesy on the part of the chauffeur and the company, and results in appreciation of our personnel by the traveling public, and therefore results in maintaining the patronage of the public.

In our operation we have enjoyed comparative freedom from collision accidents. Our schedules are arranged with time points covering the whole route and with a little leeway in time between each time point. This results in eliminating from the driver the strain of traveling behind time. The actual speed at which the coach must travel is approximately 35 miles per hour, on territory outside of the cities. This is slightly higher than the average speed of vehicles in such territories. I believe it is safer to have a speed higher than the general average so that the schedules do not force the coach to become a part of the numerous processions of vehicles which are always found on main traveled roads on holidays, Saturdays and Sundays.

Coaches in public utility business must be operated at night and special attention must be given to adequate lighting of the vehicle, outside and inside. Headlights must be adequate in size, provided with lenses that will present a minimum interference with light rays, and at the same time not disturb opposing traffic. A first-class spotlight should be used to define the curb when dimmers are used. Furthermore, I believe that markers should be used that all traffic, both opposing and in the same direction, shall be made aware that the vehicle is a coach used in public transportation service. This is important because the average coach is wider than the average passenger car. Moreover, slow-moving vehicles proceeding in the same direction are much more inclined to turn out of the way for a public transportation vehicle than they would for a passenger car. The lighting should be so distinctive that a prospective passenger can identify the coach a long distance away.

*Abstract of a paper presented at the thirteenth annual Safety Congress, Louisville, Ky., Sept. 30.

Fall Meeting of American Welding Society

THE fall meeting of the American Welding Society will be held at the Hotel Winton, Cleveland, Ohio, Oct. 30 and 31. The morning of the first day will be devoted to registration with an inspection trip in the afternoon. The technical sessions will be held the second day. There will also be meetings of the board of directors and of the meetings and papers committee.

Berlin Railroad Congress

(*By radiogram from Berlin, Germany*)

THE exhibition of railway material in Berlin, which began Sept. 21 and was to have closed Sept. 27, has been extended to Oct. 19. This convention is being held under the auspices of the Verein Deutscher Ingenieure.

Maintenance of Equipment

Traveling Carrier for Rivet Squeezer

RIVET squeezers are used whenever possible for steel fabrication work by the mechanical department of the Twin City Rapid Transit Company. The utility of this equipment, however, has been found to depend largely on the provision of a suitable mounting which will enable it to be readily moved about from point to point on a fabrication job, without loss of time.

A movable structural framework, which is so arranged on a floor and wall track that it can be readily moved along for a distance of several hundred feet at one side of the structural steel shop, has proved to be a very satisfactory arrangement in the Snelling Avenue shops. Between the supporting leg of the frame and the wall, a transverse track is arranged on the carrier. This supports a chain block from which the squeezer is suspended, and thus enables the squeezer to be readily moved to any point in a large section of the shop.

Three sizes of squeezer heads are in use. The smallest of these takes rivets up to ½ in. in diameter; the second size handles rivets up to ⅞ in. in diameter, and the largest head will handle rivets up to 1¼ in. All of these heads are pneumatically operated, and a flexible air hose allows the head to be moved about to various points on the job which is in process.

Several advantages are claimed for the squeezing method of driving rivets, in comparison with the use of pneumatic hammers, particularly for car work. In the first place, it is felt that the squeezer produces more uniformly formed heads, and as rivet heads are particularly conspicuous on the side frames of cars, this is held to be of more importance in car work than in ordinary steel structures.

In addition to these advantages, the squeezer method is held to make it easier to drive the rivets without denting the plates near the rivet heads, as sometimes occurs in the hammer method when either the

A Structural Steel Movable Carrier for the Pneumatic Rivet Squeezer in the Snelling Avenue Shops of the Twin City Rapid Transit Company Greatly Increases the Utility of This Device for Structural Work

riveting hammer or the "bucking-up" tool is not held exactly square to the surface. The squeezer has also been found to give tight rivets that completely fill the hole in the steel members. Reduction of noise in the shop tends to reduce the nervous strain on employees, and as a result, leads to general increased efficiency.

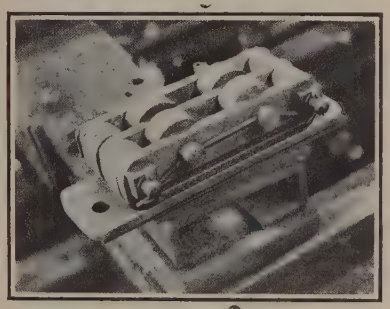
In some shops where squeezers are used, makeshift methods of mounting greatly limit their utility. Sometimes the squeezer is mounted on a permanent stand, so constructed that the work itself must be moved along as successive holes are to be riveted.

When the part under construction is a large member, as for instance the side frame of a car, this method becomes very awkward. The flexibility of the movable frame mounting used in the Snelling Avenue shops has been found greatly to increase the range of work to which the squeezer method can be efficiently applied.

Novel Roller Side Bearing

A NOVEL roller side bearing which has proved efficient both in operation and replacement is constructed in the Wheaton shop of the Chicago, Aurora & Elgin Railroad, and is used on all of this company's high-speed equipment. The bearing consists of four small rollers, mounted in pairs, so as to give the effect of a long continuous roller.

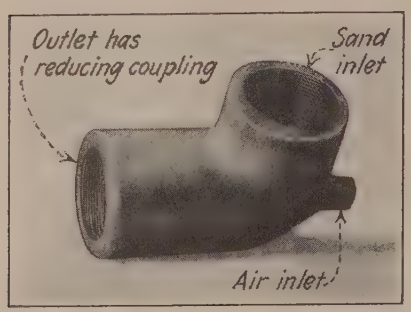
As shown in the picture, the base of the bearing consists of a piece of 4-in. x ½-in. forged steel plate of sufficient length to accommodate the fastening bolt of the bolster. To this base is riveted a plate of the same section slotted and rolled up at the ends to form eyes for holding the assembling bolts. At each side and down the center are ½-in. x 2-in. steel bars. These serve to support the roller shafts, which are of 1-in. case-hardened steel. These shafts are held in position at each end and kept from turning by means of ¼-in. steel rods. The four case-hardened rollers are mounted as shown in the illustration. These rollers are of 2½ in. diameter and 1¼ in. wide. They have sufficient clearance to rotate freely. The assembly is completed by means of ¾-in. bolts at the end. This arrangement lends itself readily to replacement of either rollers or shafts. This type of bearing has been in use for two years and has proved satisfactory in every detail.



Dual Roller Side Bearing Used on Interurban Equipment of Chicago, Aurora & Elgin Railroad

Home-made Sand Trap Proves Satisfactory

BRASS sand traps made in the Decatur shops and used on interurban cars of the Illinois Traction System have proved satisfactory. The trap is an elbow of the sand pipe line and is of brass construction. When in position the vertical leg connects with the pipe line from the sand box on the car. The horizontal end is connected by means of a reducing coupling to the flexible hose which leads to the discharge outlet over the rail. At the corner of the elbow is a quarter-inch hole, drilled in the same direction and on the same center line as the horizontal



Sand Trap Used on the Cars of the Illinois Traction System Was Designed and Built in Its Shops at Decatur, Ill.

opening of the elbow. A partition in the elbow just above this small hole obstructs the passageway, reducing the opening to about 50 per cent of the inlet and outlet openings. These two main openings are threaded on the inside, the upper one to receive the pipe from the sand box and the lower one to receive the reducing coupling. The reducing coupling is inserted in the pipe line in order that it may take the wear, due to the sand blast, and may be easily replaced at a small cost. If the sand trap was connected directly to the outlet pipe, the pipe would be worn away and the replacement would be more difficult and costly.

Forge Shop Rest

By J. L. Rogers
Forge Shop Foreman, Kanas City Railways

THE accompanying illustration shows a type of adjustable stand which has proved particularly useful in the forge shop of the Kansas City Railways for supporting the ends of long pieces during forging or heating operations. With the adjustable feature it is possible to support the piece at the exact angle desired.

Simple but rugged construction is desirable in this kind of shop equipment, and this consideration dictated the design of the stand, which is constructed entirely from forged parts securely welded or riveted together. The adjustment latch is very simple and rugged. To raise the stand it is necessary only to pull up on the top rest, until the latch engages the proper notch in the rack on the vertical center leg. To lower the rest, it is lifted up slightly so as to relieve the latch, which is then held away from the rack with one hand while the rest is lowered to the desired position with the other. No thumb screws or bolts are used.

A Useful Adjustable Rest in the Forge Shop of the Kansas City Railways for Supporting the Ends of Long Pieces of Work

A roller between the two vertical members on the sides of the rest makes it easy to move work back and forth on the rest and anvil.

New Equipment Available

Engine and Differential Off Center

New Design of the Yellow Coach Manufacturing Company Gives Clearance for a Low Floor by Making Differential Housing Come Under Seat Rather than Under Aisle

INTERESTING departures from conventional practice are incorporated in the new Y-type chassis which was recently placed on the market by the Yellow Coach Manufacturing Company. The decided tendency toward specialized design to meet the specific requirements of bus operation is shown by a number of novel features in this new chassis. The entire power unit, with transmission, drive shaft and differential, is set to the left of the center line of the chassis. The new model "Y" sleeve valve engine is a six-cylinder unit developing more than 100 hp. maximum output. A specially designed, complete airbrake system, which is optional equipment, is designed as an integral part of the chassis. In addition to these features the elements of convenience, safety and appearance of the completed vehicles are reflected in low frame height, careful attention to road clearances, turning radius and spring suspension.

An Optional Air-Brake System Is Designed as an Integral Part of the Chassis. Air Lines Lead Direct to Cylinders Mounted Inside the Four Wheels. These Are Entirely Inclosed for Protection Against Mud

Although several advantages are claimed for the offset construction employed in this chassis, the primary reason for the arrangement is to allow the use of a low floor height without ramping the floor over the rear axle. The axle pot and bevel wheel are set over to the left 13½ in. from the center line. This allows the bevel-gear housing to come up under a seat when the load springs are deflected. By the arrangement employed, good road clearance is also obtained under the center of the axle, when driving on a sharply crowned road.

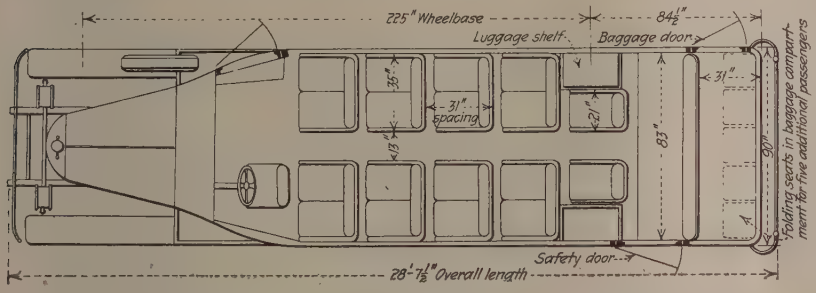
At the front end, the engine is set over 7½ in. to the left of the center line of the chassis. This is claimed to give a number of important advantages. In the first place, the hand-brake and gear-shift levers are brought over close to the driver, thus giving maximum seating space alongside the driver in sedan-type bodies and increasing the available space near the doorway on both the parlor car and city service types.

"Automobile" Appearance Is the Objective in the Design of Bodies for the New Yellow Coach Model Y Chassis. These Are Furnished in Parlor Car, Sedan and Pay-Enter Types

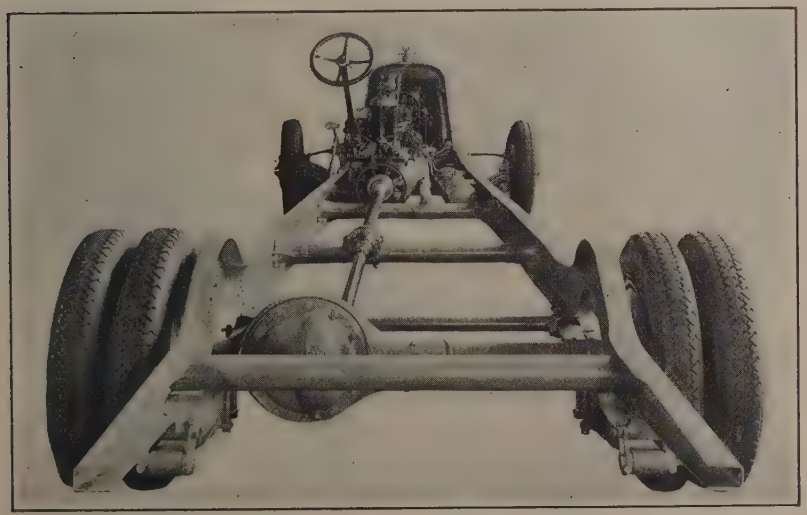
Since considerable space is available at the right-hand side of the engine, this is utilized to mount the storage battery above the chassis frame inside the hood. The ignition distributor is mounted on the right-hand side of the engine and the electrical fuses are located on the outside of the dash on the same side of the engine. As a result of this arrangement, the storage battery is connected to the generators and motors by short leads, and at the same time the entire electrical system is readily accessible for inspection and is all concentrated at one point on the chassis.

Since the propeller shaft is also off center, this leaves room for introducing a longitudinal beam under the body floor at the center line above the cross-members, so as to reduce the vibration of the floor. It is pointed out that on wide chassis frames such as this, an additional sill of this kind is very desirable.

Such auxiliaries as the gas tank, air tank, spare wheel, storage battery are all mounted on the right-hand side of the chassis, to balance the offset power plant transmission and differential. As the result of exhaustive road tests, it is claimed that this mounting toward the left-hand side of the chassis actually tends to improve tire performance and steering, because the effect of operating on crowned roads gives an improved distribution of load on the tires in comparison with a centrally mounted power plant and driveshaft.



In the Parlor Car Body a Baggage Compartment Is Provided at the Rear and Baggage Shelves Are Built Over the Wheel Housings



By Offsetting the Power Plant, Driveshaft and Differential, the Frame Height Is Decreased and Additional Space Is Obtained at the Entrance Door. Top of Chassis Is 20 In. Above Ground

Coping Attachment for Shear or Punch

THE Buffalo Forge Company, Buffalo, N. Y., has placed on the market a combination flange and web coping attachment for use with any Buffalo punch, shear or combination machine with a high throat. Machines with low throat will not take this new coping attachment. The new design will cope or notch channels, I beams, Z bars, tees, plates and angles.

A distinguishing feature of the new attachment is the self-aligning arrangement of the knives. The upper knife holder has a machined extension which slides in a corresponding guide in the lower one. In addition two vertical guide pins rigidly fastened to the lower knife holder extend upward to machined openings in the upper knife holder. These pins hold the knives in alignment by preventing any shifting or turning of either knife in relation to the other. For gaging the depth of cut to be taken, or for gaging the depth of notching in flanges, adjusting screws are provided. Machined pockets into which the knives fit insure correct relative positions of the shearing edges without adjustment.

The News of the Industry

Eight Cents in Des Moines

Fare for Car Riders to Go to Nine Cents—The Stabilizing Fund Is Wiped Out

Des Moines, Iowa, car riders will begin paying a 9-cent fare on Nov. 1. This was indicated by F. C. Chambers, president of the Des Moines City Railway, in a letter notifying the City Council that a straight 8-cent fare will be put into effect on Oct. 1, and that, "in all probability, in order to secure the required revenue, it will be necessary to establish a 9-cent cash fare with a ticket fare of 8½ cents after the rate just referred to has been in effect for a period of thirty days. A trial for thirty days is prescribed by the franchise ordinance."

The new fare does away with the purchase of ten tickets for 75 cents. Few riders availed themselves of the ticket provision. Children will continue to ride at the old rate. Under the 9-cent fare patrons will be able to purchase ten tickets for 85 cents.

Results in July and August this year showed a decrease in revenue over similar months in 1923 of $30,004, while, under the latest arbitration award, labor, pensions and employee insurance expenses increased $14,956.

The 7-cent fare was put into effect on Dec. 27, 1923, when the stabilizing fund went above $150,000. The railway broke even the first month of operation at the reduced fare, but from that time on each succeeding month showed a larger deficit, until the fare was again raised to 8 cents in June, 1924. However, with the back pay provision of the Noonan arbitration award and the new pension and employees' group insurance, put into effect at that time, the 8-cent fare failed to stop the inroads on the stabilizing fund, with the result that the fund was reduced to about $5,600 in July and was completely exhausted in August.

Month	Revenue Passengers	Deficit
February	2,781,846	$10,997
March	2,953,924	6,037
April	2,647,908	32,265
May	2,577,124	29,852
June	2,306,270	41,693
July	2,237,684	25,025
August	2,403,430	12,435

The accompanying report of the city railway shows how, since January of this year, the monthly deficits have rapidly eaten away the stabilizing fund upon which carfare rates are determined.

Increased Rates in Oregon Cities

Seven-cent fares went into effect on the lines of the Salem Street Railway recently, representing an increase of 1 cent. A similar increase has been placed in effect on the lines of the Eugene Street Railway. Both lines are owned by the Southern Pacific Railway. The application of the company to the Department of Public Works for permission to increase rates stated that in both cities the lines had been operated at a loss for several years. The City Council at Salem only a short time ago had passed an ordinance permitting the Southern Pacific Company to remove its car tracks and to establish bus lines on Seventeenth Street between D and Center, on Seventeenth between D and Market and on Sumner Street between Market and Chemekta.

For some time Salem and Eugene have been centers of controversy over the question of increased railway fares and bus replacements. Early in the present year the Public Service Commission suspended proposed new tariffs for operation in these two cities and since that time the Southern Pacific Company operating the lines in both cities has been insisting upon its inability to continue serving its patrons unless relief were promised. The developments in both cities have been followed from time to time in the ELECTRIC RAILWAY JOURNAL.

New Franchise Terms

Detroit United Railway Granted Service-at-Cost Franchise on the Wyandotte Division—$300,000 for Improvements —Bus Service to Start Soon

BY THE largest special election vote ever cast in any of the affected communities, the cities of River Rouge and Wyandotte and the villages of Ecorse, Riverview, Sibley and Trenton have entered into a new agreement with the Detroit United Railway. The action taken marks the final settlement of the ten-year controversy over the franchise rights of the railway through these communities on its Wyandotte and Trenton interurban division. Active negotiations, which finally resulted in the adoption of the new agreement, have been under way since the last interruption in service on this division about a year ago, and were handled for the railway by W. G. Fitzpatrick and A. D. B. Van Zandt.

The agreement provides a ten-year service-at-cost franchise, with a day-to-day extension from the date of expiration. This extension arrangement gives the several communities the right to purchase or lease their portion of the line at any time after the ten-year period, but also includes provisions to safeguard continuous operation of through service in the event that only certain of the communities decide to exercise their right to purchase.

In addition to the service-at-cost plan, the new agreement contains a very unique arrangement for insuring coordinated action by the six communities in carrying out the authority granted them for the regulation of service and fares. It sets up what is virtually a board of directors with full power over fares and service under the conditions of the agreement. A majority of the legislative representatives of each community constitutes a quorum which can act for and bind the community to its action, and representatives of not less than three of the six interested communities are made to constitute a quorum to transact business to which all of the six communities are severally and collectively bound. In this transaction of business affecting railway matters by the representatives of the communities, the several communities vote in units in accordance with a predetermined voting power based on population.

To carry out the provisions of the service-at-cost arrangement, the valuation of the railway property was fixed at $800,000 and a stabilizing fund of $50,000 set up. The rate of fare must be sufficient to pay all costs of operation as defined in the agreement, and to give a return of 6½ per cent on the total invested capital. When the fund drops to $35,000 it is mandatory upon the communities to vote a fare increase. When the fund reached $65,000 the fares are to be reduced.

The company has agreed to make extensions, additions and betterments to the amount of approximately $300,000. These improvements are to be started immediately, and certain portions of the work will be completed during the current year, while the remainder is contingent on the carrying out of certain highway changes through some of the communities. Most of the work to be done consists of relaying and paving certain sections of the route so as to complete a double track line.

The valuation of $800,000 which was fixed and became a part of the new agreement represents the value found by the Michigan Public Utilities Commission as of Dec. 31, 1922, corrected for new passenger cars, depreciation, additions and betterments to June 1, 1924.

BUS SERVICE TO BE STARTED

During the negotiations for the new franchise agreement, the railway also made an oral agreement to start a paralleling but de luxe bus service at a higher rate of fare between the several communities on the Wyandotte Division and the city of Detroit. Plans for this

service have been pushed forward with the expectation of starting the bus operations on Oct. 1. During the early period of this new operation both the frequency of service and the rate of fare will be largely experimental, until the actual requirements can be determined by experience.

SINGLE-DECK COACHES TO BE USED

For the time being single-deck Model Z Yellow Coaches will be operated on an hourly schedule in through service between the business districts of Detroit and Trenton, a distance of 10.44 miles outside the city limits of Detroit. In addition to this a local service between Detroit and Wyandotte will be given with a 20-minute headway.

Fares on the buses will be based on a unit rate between any two of the adjoining communities, rather than on a flat mileage rate as is the practice for railway fares. The minimum fare on the buses will be 10 cents, and this will apply for a local ride between any two adjoining communities, except between River Rouge and Detroit. In other words a ride for 10 cents will be furnished within the limits of any single community, or between two adjoining communities except between Detroit and River Rouge, where the fare will be 15 cents. In through service between Detroit and the various cities and villages on the division the fare will be 15 cents to River Rouge, and will then increase in steps of 5 cents as the limits of each next adjoining city or village are reached. This will make the total bus fare from Detroit to Trenton 40 cents in comparison with the present railway fare of 27 cents, which is computed on a flat 2-cent per mile basis. Bus service will also be given between Detroit and Grosse Isle for a 50-cent fare.

TEN VEHICLES AT START

The new service will be started with ten vehicles, eight of which will be required to fill the initial schedules, with two held in reserve as extras. The railway has agreed to credit to the railway fund any surplus from bus operation above costs and a reasonable return on the investment.

Another Delay for Bus Hearing in New York

The Board of Estimate of the city of New York, sitting in committee of the whole on Sept. 29, again deferred setting a date for a public hearing on the several bus franchise applications.

In the opinion of a majority of the board it would be desirable to hold the hearing after a report is received from the Board of Transportation, which is now inquiring into the matter. It is expected Commissioner Delaney and his associates will be ready to report within a week or two and soon thereafter the Board of Estimate will name a date for a public hearing. Mayor Hylan made it clear that while the Transportation Board's report doubtless would afford a basis for intelligent discussion he would not consider himself bound to any particular course of action by its recommendations, but would reserve judgment.

Scranton Men Receive One Cent an Hour

An increase of 1 cent an hour has been granted to the employees of the Scranton Railway, Scranton, Pa., as a result of the award handed down recently by Bishop M. J. Hoban. This award terminates a controversy that has been waging since April when the old contract expired. Prior to the expiration of that contract the employees demanded a new contract calling for an increase of 17 cents an hour. This the company was unwilling to grant but was willing to submit to arbitration both the wage question and the rush hour tripper service, which was also up for discussion. The men demanded that only the wage be arbitrated and the question of tripper service be dropped.

As a result of this there was a strike which lasted 4½ days. This was followed by an agreement between the employees and the management whereby the men accepted the rush-hour run with modifications, and consented to the matter of wages going to arbitration. The arbitration proceedings commenced on May 19. Attorney John McCourt was selected for the company and L. F. Hart for the carmen, with Bishop Hoban to act as third arbiter. The points at issue leading up to the strike and the subsequent settlement were reviewed in the issues of this paper for April 5 and April 12.

Railway Would Establish Six Bus Routes in Yonkers

Eight applications for consent to operate buses within the limits of Yonkers, N. Y., have been received by the Common Council of that city. One of these petitioners is the Third Avenue Railroad. That company proposes to establish six bus routes in Yonkers, in place of some of its existing trolley lines, and to issue transfers to or from the buses to trolleys.

What action the Common Council will take on the various applications has not been determined. The Aldermen have decided to meet in committee of the whole in order to permit each petitioner to state his case, but no date has been set for this meeting.

Applications for consent have been submitted as follows: Westchester Motor Transfer Company to establish a line from White Plains to Yonkers; Third Avenue Railroad, six bus routes within the city and a seventh to White Plains; Westchester County Bus System, to operate numerous lines in Yonkers at a flat fare of 10 cents; Hudson Valley Tourists, Albany, N. Y., to run buses through Yonkers on its New York to Albany route; Robert Tostanoski and Harry A. Berrenrath, Yonkers, for one bus route in Yonkers, and Sound Bus Company, to operate two lines in Yonkers.

Recently the Sound Bus Company started a route from the center of Yonkers south to the New York City boundary, notwithstanding that no formal consent had been received from the city of Yonkers to establish the line and that the buses were run within 1,000 ft. of a trolley line. Two buses were allotted to this route, and the fare charged was 5 cents, the same as that of the railway for a similar distance. On Sept. 22 the Third Avenue Railroad secured a temporary injunction against further operation. This injunction was made returnable on Sept. 25.

On Sept. 23 the Third Avenue Railroad, which controls the Yonkers Street Railroad, applied for permission to discontinue five of its lines in Yonkers.

Tax Relief in Omaha Sought

The Omaha & Council Bluffs Street Railway served an ultimatum on the City Council of Omaha, Neb., on Sept. 17 declaring that unless the present city occupational tax and the city's paving requirements were lifted it would immediately apply for a higher fare. In a letter to the City Council R. A. Leussler, second vice-president and general manager, said that the revenues of the company had become so seriously impaired that an early readjustment was imperative. The net income from operation in Nebraska had fallen off more than $1,000,000 below the amount which the Nebraska Railway Commission had found the company was entitled to earn for the years 1920 to 1922 inclusive. He said the company fell short considerably more than $300,000 in 1923 of the amount it should have earned and that at the present time the receipts showed a decrease of approximately $1,000 a day compared with corresponding days of last year.

According to Mr. Leussler the company knew of no material savings in operating expenses which could be effected. He said there were only two alternatives, namely, the release of the occupational tax and paving requirements. He suggested a joint conference with members of the City Council, the commission and representatives of the company to consider the situation and decide what course to take. The occupational tax is 3 per cent on the gross revenue of the company and amounts to about $100,000. The paving requirements are about $100,000 additional.

Detroit United Extending Use of Buses

In line with its general policy of utilizing the bus in co-ordination with its rail lines wherever such service is thought to be advisable, the Detroit United Railway has purchased the principal bus lines in the city of Flint and is operating the best of the old buses together with new vehicles which have been put into service. The bus routes are operated in conjunction with the electric cars to give a complete transportation service. New buses will be added at this point as fast as they are required.

Another major step in the application of buses is being considered in connection with the Detroit terminal situation. Due to the fact that the Detroit United Railway has no permanent rights for its cars to enter the city of Detroit, and the further fact that trackage charges now made by the city for the operation of these cars over the tracks of the municipal railway are heavy, plans are being considered for cutting off the railway's routes at the

limits of the city and transporting through passengers by bus between terminals to be constructed at these points and the present railway terminal near the center of the city. These plans are being pushed forward rapidly, and the new arrangement, if finally decided upon, will probably be started soon.

Jacksonville Can Have Buses Whenever It Wants Them

The Jacksonville Traction Company, Jacksonville, Fla., is ready to install buses in Jacksonville whenever the City Council will permit. The buses would be used in connection with the present railway system.

The company some time ago petitioned the City Council to allow buses to be placed on the Oakland line and that they be run beyond the terminus of this line to Talleyrand Avenue to serve the large industrial plants there. The Council, however, refused to allow the company to take this step.

Tendency to Go Slow with Bus Permits at Worcester

Several of the towns which are threatened with loss of their traction lines to Worcester, Mass., are debating the question of granting licenses to bus proprietors. Recently the Worcester Consolidated Street Railway discontinued service to Spencer and a number of other places, and it is coming to be realized that the railways are in earnest about the competition of buses leaving them without sufficient revenue to continue.

The Selectmen of Northboro have decided to put the question up to the voters. Buses running between Westboro and Marlboro will not be permitted to stop and take on or leave passengers until Northboro voters settle the question.

Interest in the bus question in Southbridge is increasing daily and the decision of the Selectmen of that town in regard to granting the Spring and Providence bus lines permission to take Southbridge passengers for Putnam, Conn., and Providence is awaited with interest. The town counsel believes the buses can stop in Southbridge to take passengers if they want to.

Millbury Selectmen have received an informal request for a bus license for a line to operate between the town and Worcester, a distance of about 5 miles. They have discouraged the applicant on the ground that the railway should be protected for the taxes it pays if nothing else.

Mr. Kurtz Silent on Reported Purchase

According to the report of which longer mention is made elsewhere in this issue the Columbus Railway, Power & Light Company, Columbus, Ohio, will be included in the merger that also contemplates the plan to take over the Continental Gas & Electric Company and other properties. The basis of the sale of the common stock at Columbus is reported at $115 a share. Charles L. Kurtz, president of the local company at Columbus since 1919, has refused to comment on the latest developments. He says that the directors will meet again on Oct. 6 and that he believed they were the proper ones to make any statement.

Eight Cents in Philadelphia—Governor Chides Commission

Governor Pinchot of Pennsylvania in a letter delivered to W. D. B. Ainey, chairman of the Public Service Commission, on Sept. 24 charged that body with "unseemly haste" in granting a temporary increase in fares to the Philadelphia Rapid Transit Company. That company is now charging an 8-cent cash fare with two tokens for 15 cents and not a 10-cent cash fare, as was inadvertently published in the issue of the JOURNAL for Sept. 27. He declared that the "rise in the stock of the P. R. T. before the commission had rendered its decision" in allowing a temporary increase had resulted in "a complete and most unfortunate loss of confidence in the existing regulation of public utilities in the Commonwealth."

In his letter Mr. Pinchot recommended that Milo R. Maltbie be retained to investigate the 8-cent fare and to look into the matter of rentals to the underlying companies and the $200,000,000 valuation placed by the commission on the company's property, upon which the 7-cent fare was based. He said that the duty of a commission was not limited merely to hearing the company's testimony but was to act as the militant defender of the public's right. He said that it was essential that the commission should itself undertake actively to protect the public rights, should plan and conduct its own thorough investigation and should hold itself fully responsible that nothing which would strengthen the case of the public might be overlooked. An answer to that communication has been sent to Governor Pinchot in the form of a resignation by Samuel M. Clement, Jr., denying the Governor's accusation and characterizing the letter as abounding in "false information."

Special Service for Atlanta's High School Students

The Georgia Railway & Power Company, Atlanta, Ga., has just started a train service to and from the new boys' high school in Atlanta.

When the city school board several years ago voted to replace the old school buildings with a new and modern structure, it was compelled to select the site for the new building at the south end of Piedmont Park, to which there was not adequate railway service. Only one line—and that a single track line—ran anywhere near the new school building and the power company was faced with the problem of how to get boys to and from that school.

When the new building was opened this fall, the company established a concentration point and a special train service for high school boys that is now working well. The concentration point is located where most of the car lines in the city intersect, and where there are sidings capable of holding the high school trains. The trains are composed of several cars each, and three of them are being operated by the company during the school rush hours. These special trains give the high school boys a better service than can be obtained by any other commuters, as they are non-stop trains running straight through to their destinations at specified school hours.

Flat Seven-Cent Fare Refused at Holyoke

A petition of the committee on public service of the Board of Aldermen of the city of Holyoke, Mass., relative to fares and fare zones of the Holyoke Street Railway has been dismissed by the Massachusetts Department of Public Utilities. The department did not feel warranted in granting the petition, particularly in view of the fact that it appeared that if the plan were put into effect the fares of 8 per cent of the car riders would be increased.

At the hearing the petitioners requested that the Holyoke Street Railway be permitted to abolish the existing 6-cent fare zones, return to a flat fare system similar to that in effect prior to 1917, but charge 7 cents instead of 5 cents. It was pointed out that under the present system a passenger paid several 6-cent fares to ride between various points within the same city, but that probably some 80 per cent of all passengers now reach their destination by the payment of a 6-cent fare.

The commission concluded, principally from this fact, that the proposed change would result in an increase of fares for a very large majority of the car riders, which, in the absence of proof that such increase was needed in order to render service and secure a fair return, would quite naturally be resented by them. On this account it saw no reason to impose this extra burden.

The present 6-cent fare plan was put into effect in 1918, after many hearings, exhaustive study of the riding on various lines and the trial of different fares and fare zones. None of those produced the revenue which the company needed and substantially the present system has been in effect since 1918. The commission said:

> Under this plan the company has been able to render service and to earn its operating expenses, fixed charges and a 5 per cent return upon its capital stock, but a somewhat less percentage of return on the money actually paid in by the stockholders. It appeared in evidence that the company has no serious objection to the request of the petitioners provided the public will be satisfied and the company is assured of an income sufficient to meet operating expenses, fixed charges and depreciation and to pay a reasonable return upon the investment. The company, however, took the attitude that its previous experience did not warrant such expectation.

Wages Settled on Interurban

An agreement is reported to have been reached between the Toledo, Bowling Green & Southern Traction Company, Findlay, Ohio, and its trainmen whereby interurban motormen and conductors will receive 47 cents an hour for the first three months in service, 49½ cents for the succeeding nine months and 53 cents thereafter. Platform men on the Findlay city lines will receive 41, 45 and 50 cents an hour. They operate one-man cars. The new wages and working conditions will be effective until Aug. 15, 1925.

Railway Wants Bus Line Restrained

The International Railway, Buffalo, N. Y. has secured a Supreme Court injunction restraining the Iroquois Indian Trails Motor Coach Lines, Inc., of Buffalo from operating its buses between Buffalo and Lockport. It is claimed the bus line is being operated in competition with the Buffalo-Lockport interurban division of the International Railway. The company has a permit from the Lockport City Council to operate buses through the streets of the city en route between Buffalo and Olcott. Two drivers of the Iroquois Indian Trails buses were arrested by detectives employed by the International Railway charged with carrying passengers between Lockport and the Niagara county fair grounds at a 15-cent fare in violation of the state transportation laws. The railway contends that under the state law the lowest fare which could be charged for the trip is 16 cents. The railway has no local trolley lines running to the fair grounds and independent bus lines were carrying passengers during the fall fair at 15 cents each way.

Special Excursion Fare on Key System Refused

The California Railroad Commission denied on Sept. 12 the application of the Key System Transit Company for authority to publish an excursion round trip rate of 36 cents from San Francisco to Oakland, including admission to Idora Park. The commission held that it had no jurisdiction over amusement companies and that the granting of this special excursion fare, including admission to the part, would be discriminatory to other East Bay communities where the single fare to Oakland on the Key system is now 18 cents.

In its decision the commission points out that the importance of Idora Park as an attraction on the rails of the Key System Transit Company is established, and that it yields applicant revenue it otherwise would not receive, but this does not justify the sale of transportation from San Francisco, including admission to the park, and contributing from the transportation collection to a selected group of patrons accommodations furnished by a corporation not under jurisdiction of this commission.

Railway Purchases Bus Right.—The Southern Michigan Railway, South Bend, Ind., is now operating a bus line from Buchanan and Niles, Mich., to South Bend, the Gray Bus Lines having disposed of this inter-city and interstate route to the railway. The Gray Bus Lines retains its city route at Niles.

More One-Man Cars in Connecticut.—Because of continued losses in the operation of cars between North Grosvenordale and Central Village, the Connecticut Company is going to place one-man cars in use on the local line. The same cars that have been in use on the line from North Grosvenordale to Central Village, for sometime past, will continue to be used. They have been remodeled and made ready for conversion into one-man cars so the usual seating capacity will be provided. The hourly service will not be changed under the new plan.

Practice vs. Profession in New York City

COMMISSIONER WILLIAM WIRT MILLS, head of the Department of Plant and Structures, New York City, announced on Oct. 1 that he had raised the fare on the Williamsburg Bridge shuttle cars, which are now operated by the city.

Under the new order the ticket system, which had provided three rides across the bridge for a nickel, is eliminated and a straight 2-cent fare for each trip is established. Commissioner Mills gave as his reason for the change the inability of the city to prevent some of its employees from pilfering the odd cent left over when three customers paid cash fares for their rides. Many of the employees, he said, almost invariably dropped into the box the three-for-a-nickel tickets and then pocketed the odd cent.

In this manner, Commissioner Mills said, the city has been losing $75,000 a year in income which it should have had. The change, however, he added, was prompted not so much by that consideration as by a desire to remove temptation from the collectors, a large number of whom doubtless were scrupulously honest.

The new order was posted at midnight on Sept. 30.

This announcement provoked comment in part as follows from Transit Commissioner Harkness:

> The city administration took over the shuttle service and thereby forced the companies off the bridge. This meant that thousands of passengers every day had to change at the Brooklyn Bridge Plaza instead of having a through ride. Instead of having a single 5-cent fare, they had to pay additionally to the city at the rate of three rides for a nickel. Now, not satisfied with the disturbance of service and the additional fare, it is putting on an additional burden by discontinuing the three tickets for a nickel and charging a flat 2-cent fare.

This is equivalent to a 20 per cent increase. Therefore the sum total of the city's mistaken activities is to break up a through service, compel thousands of passengers to transfer from one set of cars to another, and make them pay 7 cents instead of 5.

First New Bus Operation in Kansas City.—The Kansas City Motor Coach Company planned to establish two bus lines there on Oct. 1, the first system of its kind in Greater Kansas City. One line will link the north and south sections of the city and another will connect the west city limits with the Union Station in Kansas City, Mo. The Kansas City Railways protested to the City Commissioners with the result that an ordinance was introduced and passed whereby the buses were prohibited from using streets parallel to railway tracks. Later the ordinance was amended to the extent that the buses are allowed to operate over the intercity viaducts parallel to the tracks, but it must seek a new route on the Kansas side.

Will Vote on Nov. 4.—The City Council of Akron, Ohio, recently authorized a vote by the people on Nov. 4 on a four-year franchise proposal of the Northern Ohio Traction & Light Company. The provisions of the franchise have been referred to previously in the ELECTRIC RAILWAY JOURNAL.

Six-Cent Fare Extended.—By a vote of six to two the streets committee of the city Council of Richmond, Va., recommended the 6-cent fare privilege granted the Virginia Railway & Power Company be continued for a period of six months, beginning Oct. 12. P. Justin Moore represented the company. In a brief statement he said that if the reasons were plain for the extension upon other occasions they were more apparent now, when opposition of buses and jitneys was more pronounced. He said that he hoped, before the proposed period of extension elapsed, the city and the company would come to some agreement on the proposed blanket franchise.

Decision on Increases in Fare Deferred.—The Maine Public Utilities Commission, following a hearing on Sept. 5, withheld decision on the application of the Bangor Railway & Electric Company, Bangor, Me., to increase its fare from 7 cents to 10 cents. Figures were presented to show the dropping off in income owing to the large increase in the use of automobiles and trucks.

Franchise in Sioux City Defeated.—The twenty-five year franchise for the Sioux City Service Company, Sioux City, Iowa, was defeated at the recent special election. It is estimated that the election will cost the city between $7,000 and $8,000. W. J. Bertke, vice-president and general manager, in referring to the new franchise sought, said that there was a real demand for railway extensions and the railway as a public utility should be encouraged to place itself upon a financial basis to meet the demand. Prior to the election there was a disagreement over certain provisions of the franchise, Mayor Gilman stating that there were four or five matters which had not been covered by the franchise which should be included. One was the question of the 2 per cent tax on the gross earnings when the city had reached a population of 75,000. There was also a question, the Mayor said, as to how soon the city could take over the property of the company in case of failure to carry out the provisions of the franchise.

Ten-Cent Rate in Lincoln.—The Lincoln Traction Company, Lincoln, Neb., has been operating in Lincoln for some time now on a 10-cent cash fare with four tickets for 30 cents and an additional 2-cent zone fare on four long lines. School children's tickets sell at the rate of ten for 50 cents. Some time ago this company applied to the commission to increase its cash fare from 8 cents to 10 cents.

Increased Rates Filed.—Commutation rates on the Rochester & Eastern and Rochester & Sodus Bay Railways will be increased. The boost ranges from 2 cents a mile to more than 100 per cent increase over the present rate. The raise will affect commuters to and from Pittsford, Canandaigua and Geneva on the Rochester & Eastern and from Webster, Geneva, Union Hill and Sodus Point on the Rochester & Sodus Bay lines. The new schedules have been filed with the Public Service Commission and are expected to go into effect within a few days.

McKeesport Puts on the Pass.—Four weekly passes became effective on Sept. 15 on the lines of the Pittsburgh Railways in the McKeesport district. Three of these are good on a single zone of as many different lines entering McKeesport. They are sold at $1.25, as against a token fare of 8¾ cents or a cash fare of 10 cents. The fourth pass, sold for $1.70, is good for one zone on the Wilmerding route plus the Evans Avenue route in McKeesport, the latter route having a cash fare of 5 cents and ticket fares of eight for 25 cents or thirty-three for $1. On May 19, 1924, the Pittsburgh Railways installed the weekly pass on its Washington city lines at $1, against a cash fare of 6 cents. It later received the approval of the Traction Conference Board to install passes in the McKeesport district.

Wage Scale Continued.—An agreement has been reached between the Springfield Railways, Springfield, Ohio, and its trainmen whereby the present wage scale will continue for another year. This scale is 45, 47 and 49 cents an hour.

Applies for Ten-Cent Fare.—An emergency application including a 10-cent cash fare was recently filed with the Oklahoma Corporation Commissioner by J. W. Shartel, president of the Oklahoma Railway, Oklahoma City. The company asks that it be permitted to sell three car checks for 25 cents instead of four as at present and agrees to sell weekly passes for $1.25. The present rate of fare is 7 cents. The company has been in financial difficulties for some time now. At the present time there is a foreclosure suit in the Federal Court against the company filed by the Missouri Valley Trust Company of St. Louis, attempting to force the company into the hands of a receiver. This receivership suit has been referred to previously in the ELECTRIC RAILWAY JOURNAL. Early this year an appointed committee requested the Chamber of Commerce to ask the City Commissioners to authorize a higher fare as a temporary relief measure and to revise traffic ordinances. Nothing has been done to help the railway to "carry on."

Foreign News

New Construction Work in Paris

The Paris Transports en Commun has begun extensive improvements, providing for the expenditure of 210,052,161 francs for new undertakings and 145,496,750 francs for general repairs. The new work includes extension and double tracking of certain suburban lines and the construction of a culvert contact system to replace the overhead wiring on the quays along the Seine in the vicinity of the Hotel de Ville. A new substation costing 1,250,000 francs is being built at Vitry-Choisy and another at Saint Denis-Gonesse with its cable installation will cost 1,000,000 francs.

Expenditure for new rolling stock will be approximately 71,110,000 francs, covering 42 reservoir cars, 50 new lightweight motor cars, 130 trailers, 475 motors and 2 self-propelled cars using gasoline fuel. The latter are for a suburban feeder line where the expense of an electric installation is not now justified and where it is not desired to establish a motor bus line.

The auto-bus section is to spend 16,256,500 francs in the construction of six-wheeled vehicles and others of a light type to be known as express buses. These will have single entrance and exit forward, but will be operated by two men.

Building construction provides for new and enlarged workshops, garages, car-sheds, etc., at an expenditure of 36,031,100 francs.

Paris Suppresses the Belleville Funicular

The funicular railway, which has hitherto served the population of the Belleville Heights in the north of Paris has been replaced by a motor bus of the Transporte en Commun. The grade of the Rue de Belleville is something like 7 per cent for the most part. Fares remain the same—15 centimes before 7 o'clock in the morning and 20 centimes after that hour. The route is covered in 7 minutes as compared with 3 minutes for the funicular. The bus, however, as a feeder for the tramway at the Place de la Republique accommodates a far greater number of people by reason of its accessibility to dwellers on side streets and along the route.

Six Prague Railways to Electrify

Electrification of six railway lines within the city of Prague is the intention of the Ministry of Railroads of the Czechoslovak Republic. The order for this work will include construction work and delivery of overhead, substation and electric locomotives. The direct-current system of 1,500 volts with overhead trolley wire will be used.

One substation will be erected at Wilson station for the entire system. For operation there will be required 5 passenger locomotives, 6 locomotives for freight and switching service and 5 heavy freight locomotives.

The electrification bureau of the Ministry of Railroads, Prague, Masaryk Station, will furnish blanks and information concerning the filing of bids. The bids will be closed at noon October 21, 1924.

Railway to Carry Mail in London.—To facilitate the transport of mail in London between postal centers and main line railway termini, the Post Office Tube Railway is going to operate a tube line electric railway about 6 miles long. Owing to small tunnels the trains will carry neither driver nor conductor but will be controlled from various stations and can be started and stopped as required. A contract for cars and electric equipment has been awarded the English Electric Company.

Progress of Southern Railway Electrification.—Electrification work on the the southeastern section of the Southern Railway, which is a combination of the suburban lines radiating out from London, is proceeding rapidly. Conductor rails have been laid, track rails have been bonded and new fishplates fixed on about 140 miles of track. Cables have been laid over 26 miles and the erection of substation buildings is well advanced.

Glasgow Tramways Seeks New Rating.—Glasgow Tramways Committee proposes application to Parliament for a reduction of the assessed valuation on the tramway lines within the city. They are now assessed at full valuation and the committee is seeking a reduction to one-fourth of the assessed valuation. This would mean a saving to the tramway company of about £20,000, which would have to be made up by the general Glasgow taxpayers.

Subway Being Considered for Brussels.—Surveys are now being made for a subway to link the three principal railway stations of the Belgian capital. According to Burgomaster Max it is proposed to erect the central station in the Putterie quarter on the site originally intended for a union railway station, and from this point three lines would be constructed to the stations Gare du Nord, Gare du Luxemburg and Gare du Midi, the principal railroad stations in the city.

New Subway for Paris.—Right of way for a new underground subway has been granted the Metropolitan Subway Company by the city of Paris, provisional on it being declared a public utility by the departmental government. This line will run from the Hôtel de Ville to the Place de la République and is an extension of a line now under construction from the Hotel de Ville to the Porte des Lilas. The platforms of the old lines, which are too narrow and too short to handle increasing traffic comfortably, are to be done away with as far as possible in these new lines.

Financial and Corporate

Milwaukee Contract Terms

Service at Cost in All Departments of Railway and Light Company with Purchase Option to City

Eventual ownership of the property of the Milwaukee Electric Railway & Light Company in the city of Milwaukee by the city is the aim of a new contract between the company and the city the terms of which were made public on Sept. 30. The measure, as noted in previous issues, has been in preparation over a long period of time by a committee of which Fred S. Hunt has been chairman. The next move is the submission of the contract to the Council. If the way can be paved there, the measure will probably be submitted to the voters in April and, if approved by them, may become effective on July 1, 1925.

The document in which the terms of the ordinance are described is a pamphlet of sixty-five pages. The terms are, of course, subject to change, just how much is a matter of speculation. Principally on this account the need does not appear to exist to do more at this time than merely to sketch some of the principal provisions of the grant. The principal end sought to be accomplished by the new grant is to provide service at cost in all departments of the company with an option to the city to purchase the undertaking, management of the property meanwhile to remain in private hands, with the earning power to remain unimpaired. The measure is described as an attempt to define better the rights of the citizens of Milwaukee and the company with respect to all of these utilities. "Its object," says a summary, "is to assure good service at the lowest possible cost. It endeavors to do this by placing a definite value, equal to actual investment, regardless of the amount of stock outstanding on the property of the company."

Among other provisions of the new grant are the following:

Contract to run in successive periods of ten years with an option by the city to purchase by giving six months' written notice.

Fare to remain the same—7 cents cash or eight tickets for 50 cents—until "stabilizing reserve" fund shall be effected.

Company for first year given a return of 7.7 per cent a year on its railway investment and 8 per cent upon the electric light and heating utility excess to go to the city. Return thereafter to be changed according to the index interest rate providing for 7.7 per cent to the company on a 5.7 per cent index and varying with the changes in the index.

City to pile up an interest in the company through the so-called "city equity account," built up by loans to the company; through excess earnings which accrue to the city and through taking "municipal mortgage bonds" on the company property.

City to have control over service and over extensions of service during the period of the contract, with certain restrictions.

Option to purchase to include the company's heating, lighting and railway property in the entire metropolitan district, including Milwaukee, Cudahy, North Milwaukee, South Milwaukee, Wauwatosa, West Allis and villages of Shorewood, West Milwaukee and Whitefish Bay and intervening territory.

On the important matter of value the ordinance may be said to provide for the allowance of a figure of about $51,500,000. To be a little more specific, the report says that while a definite value of the company's property must necessarily be related to a certain date, since the value is constantly changing, the value of the fixed property of the company in the contract area, or metropolitan district, was $39,435,334, as of Jan. 1, 1921, as audited. To this figure, of course, must be added additions and improvements in the contract area since that date. These amount to $12,027,640 to Jan. 1, 1924, according to the books of the company. The audit on these additions has not been completed. The property referred to constitutes all the holdings of the company in the contract area with the exception of materials and supplies, cash and accounts receivable.

Merger Includes Columbus (Ohio) Properties

Announcement has just been made of the largest recent consolidations of electric light and power companies. The merger takes in the United Light & Power Company, with its headquarters in Grand Rapids, Mich.; the Columbus (Ohio) Railway, Power & Light Company, and the Continental Gas & Electric Corporation with its subsidiaries, chief among which are the Kansas City Power & Light Company and the Lincoln Gas & Electric Light Company, Lincoln, Neb.

These newly consolidated companies own public utilities in eight Central West States and serve a total population of about 1,750,000 and have a combined normal generating capacity of 340,000 kw. Their total gross revenues are put at about $34,000,000 annually.

The officers of the consolidated company will be C. S. Eaton of Cleveland, chairman of the board; Frank T. Hulswit of Chicago, president; Richard Schaddelee of Grand Rapids, Rufus E. Lee of Omaha, J. Denman of Davenport, William Chamberlain of Cedar Rapids and L. H. Heinke of Grand Rapids, vice-presidents. Joseph F. Porter, president and general manager of the Kansas City Power & Light Company, will be a director with Landon K. Thorne, of Bonbright & Company, investment bankers of New York; Burton A. Howe and Warren H. Snow of Grand Rapids, William Butterworth of Moline, Glenn M. Averill of Cedar Rapids, Charles H. McNider of Mason City and Thomas Jones of Cleveland. Present operating personnel will remain in charge of the individual companies. Headquarters will be in Cleveland.

The announcement revealed that the United Light & Power Company has recently acquired more than 75 per cent of the outstanding common capital stock of the Continental company. The United in the near future will offer to acquire, in exchange for its own securities, all of the remaining outstanding common stock of the Continental.

Canadian Undertaking Changes Hands

The stock holdings of the Barnsdall Corporation, New York, in the Moncton Tramways, Electricity & Gas Company, Ltd., Moncton, N. B., Canada, have been disposed of for approximately $500,000. This stock was carried on the company's balance sheet at $105,780. These properties are located 80 miles from St. John, New Brunswick, and do not link up with other properties of the company or with future development plans. The Barnsdall company further explains that the proceeds of the sale of this stock will be used to reduce the company's outstanding bonds from $7,099,000 to $6,600,000. Only 2.5 miles of electric railway are involved.

The sale was made to a financial syndicate which is expected in turn to place the securities privately. Officials of the Barnsdall Corporation explained that announcement might be expected to be made more fully from the bankers, but that they could not do more at this time than to confirm the report of the success of the purchase negotiations.

Youngstown Deficit Increases

The deficit of the Youngstown Municipal Railway, Youngstown, Ohio, has continued to increase. During July the cost of service exceeded income by $38,998, bringing the deficit of the stabilizing fund to $1,169,399, compared with $1,039,794 on Dec. 31, 1923. Figures for July follow from the report by Harry Engle, Street Railway Commissioner.

Gross revenue was $142,061. The amount allowed for operation was $109,520, but the actual outgo for operation was $105,675, leaving a balance of $3,845 in the operating fund at the end of the month. On the other hand, maintenance expense was $39,561. This figure produced a deficit of $3,830 in the maintenance fund for the month. The number of passengers carried was 2,297,139 and the car-miles and bus-miles operated 456,576. The earnings per vehicle-mile from a cash fare of 8 cents, seven tickets for 50 cents and 1-cent transfers were $0.311 and the actual cost per vehicle-mile $0.396.

Common Dividends Commenced by Holding Company. — The Interstate Railways, Camden, N. J., has declared an initial dividend of 1 per cent on the common, payable on Nov. 1 to stock of record Oct. 15. All but 4,000 shares of preferred stock were recently retired, clearing the way for dividends on the common. The income of the Interstate Railways is derived mostly from dividends on the stock of the United Power & Transportation Company, which it owns. The properties of the United Power & Transportation are nearly all leased out to others and its income is derived principally from rentals.

Providence Road Does Better.—The United Electric Railways, Providence, R. I., in August showed a deficit of $24,209 after payment of taxes, interest and miscellaneous charges, against a loss of $28,800 in July, $42,794 in June, $37,891 in May, and $45,451 in April.

Additional Chicago Issue Offered.—The National City Company and Halsey, Stuart & Company, Inc., New York, offered on Oct. 1 an issue of $2,500,000 Chicago Rapid Transit Company first and refunding mortgage 6½ per cent gold bonds, 1944. This is an additional issue by the company that operates Chicago's elevated lines.

Stock Sold to Employees.—More than $500,000 of cumulative preferred stock of the New Orleans Public Service, Inc., New Orleans, La., has been subscribed by employees of the company in the course of the campaign which began a few weeks ago. The stock is not a new issue, but is part of the regular issue made on the reorganization of the company, of which there is more than $4,200,000 outstanding. Up to Sept. 21 3,200 of the 3,400 permanent employees had invested in the stock.

Minority Interest in Kansas City Light Sold.—Announcement has been made that the Continental Gas & Electric Corporation has purchased from the Illinois Power & Light Company the minority stock of the Kansas City Power Securities Corporation, which owns all the common stock of the Kansas City Power & Light Company. This gives Continental the ownership of 98.7 per cent of the outstanding Kansas City Power Securities Corporation stock. It has also purchased from the treasurer of the company its remaining authorized common stock, amounting to 25,000 shares, including an additional 15,000 shares authorized at a stockholders' meeting on Sept. 15.

Will Cease Operation.—Judge Carroll in the Supreme Court of Massachusetts has given permission to the Milford, Attleboro & Woonsocket Street Railway, Milford, Mass., to cease operation permanently on Oct. 3. The road has been losing money at the rate of $1,000 a month, according to the report of Clark V. Wood, who was made receiver in the summer of the current year. The railway operates 29 miles of line.

Eastern Massachusetts Paying Off Bonds.—It was arranged to pay off an issue of $689,000 of 5 per cent bonds of the Brockton Street Railway, part of the Eastern Massachusetts system, at maturity on Oct. 1. The company had the privilege if it so desired of extending the bonds to Oct. 1, 1929. Another subsidiary issue of $371,000 of Lynn & Boston 5s matures and will be paid off Dec. 1 next.

Seeks Foreclosure Sale.—The Harris Trust & Savings Bank, Chicago, and the St. Louis Union Trust Company filed petitions on Sept. 17 requesting the foreclosure sale of the property of the Joplin & Pittsburgh Railway, Kansas City, Mo. The railway is now in the hands of receivers. Murdock H. McLean, Chicago, has been appointed receiver, to succeed Karl D. Klemm. The concerns just referred to are the trustees under a mortgage drawn in the sum of $1,750,000. The interest due March 1, 1924, amounting to $43,750, has not been paid. The sale of the property will not be consummated for about three months, Mr. McLean said. The road operates from Joplin, Mo., and Pittsburgh, Mulberry, Cherokee and Gerard, Kan.

Legal Notes

ALABAMA.—*Responsibility for Parked Automobiles at Pleasure Resort.*

A railway company owned a pleasure park and permitted automobiles to park in a certain space for 15 cents each. In the check given for this sum a notice was printed that the company assumed no responsibility for lost, stolen or damaged property while parked in that space. The owner of a parked car which was stolen brought suit on the ground that a bailee cannot contract against his own negligence. The court held, however, that in the circumstances no duty of the company to guarantee the stealing of cars so parked was implied. (Thompson vs. Mobile Light & Railroad Co., 101 Southern Rep., 175-177 (two cases).)

CALIFORNIA.—*Duty at Railroad Crossing.*

Where a steam railroad and a street railway have an agreement as to the precedence of cars at a grade crossing, the question is not what this agreement calls for, but what custom or practice has been followed. The case was one of injury to a passenger on a street car struck by a railway train at such crossing. (Clarkson vs. United Railroad of San Francisco, 227 Pacific Rep., 710.)

CALIFORNIA.—*Backing of Car Without Adequate Warning Held Negligible.*

Where a car was being operated backwards without any audible signal to indicate the fact and without any lookout or warning by flagging, and collided with an automobile, the company was held negligent, despite the fact that the automobile driver drove closer to the street car track than was required under traffic conditions. (Adamson vs. City and County of San Francisco, 225 Pacific Rep., 875.)

CONNECTICUT.—*Cost of Maintenance of Planking on Bridge.*

A railway in 1906 agreed with a city to maintain its track on a highway bridge under the duties and obligations imposed by a certain section of the general statute, which called for the maintenance of the flooring of the bridge between the track and for 2 ft. each side. Subsequently this statute was repealed and a substitute statute required railway companies to maintain only 8 in. of the bridge on each side of its track. The court held that the contract first mentioned with the city was correspondingly modified, and the company's obligations under it were reduced to the 8 in. specified. (United States Trust Co. vs. Shore Line Electric Railway, 125 Atlantic Rep., 265.)

LOUISIANA.—*Control of Parking Privileges.*

The railway company maintained a park and parking area for automobiles with no charge for use of parking area, but excluded a former jitney driver, former secretary of the jitney association from the use of this area. The court decided that it was within its rights to exclude as it thought proper to do so, but awarded damages of $500 because the manner in which this exclusion was made tended to humiliate the former jitney driver, who was a woman. [Malczewski vs. New Orleans Railway & Light Co., 101 Southern Rep., 213.]

MICHIGAN.—*Injury to Stalled Automobile on Track.*

An automobile became stalled while crossing the electric railway track on Woodward Avenue some distance out from the city, but where the street was paved 18 ft. across, and when an electric car was about 300 ft. away. The motorman whistled, but did not slacken speed until the car was within 30 or 40 ft. of the stalled automobile. He was then unable to stop it. It was held that the question of negligence should be decided by a jury. (Golob vs. Detroit United Railway, 199 Northwest Rep., 639.)

MISSOURI.—*Interurban Electric Railway Not Bound to Operate Unprofitable Local Track.*

An interurban electric railway, which was operating under a permissive grant, was not bound to continue the operation of a short local line, when such operation for twenty years had resulted in loss and when there is no reasonable ground to expect improvement and the entire system was losing money to the extent that it was not able to pay a fair return on the capital employed. In consequence, the Public Service Commission was justified in authorizing the company to abandon the local line. (State ex rel. City of Carthage vs. Public Service Commission, 260 Southwestern Rep., 973.)

NEW JERSEY.—*Damages for Death by Negligence Limited to Pecuniary Injury to Widow, Surviving Husband or Next of Kin.*

Under the New Jersey law, where a person is injured through the wrongful act of another and such injury causes death, any suit brought therefor must be for the exclusive benefit of the widow or surviving husband or next of kin, and the damages recoverable are limited to the pecuniary injury resulting from such death to such widow or surviving husband or next of kin. (Soden vs. Trenton & Mercer County Traction Co., 124 Atlantic Rep., 710.)

NEW YORK.—*Railway Entitled to Construct Sidings Necessary Under Changed Conditions.*

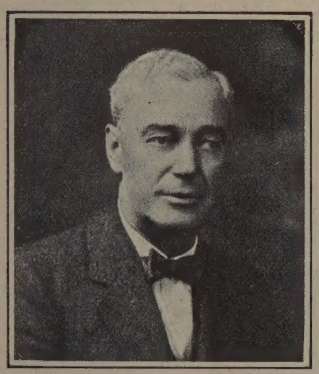
A franchise to operate a railway in the streets of a city is a franchise to operate it with such sidings and connections as are reasonably necessary to the enjoyment of the grant. Hence, where changed conditions have made necessary the construction of a siding for the benefit of the public, the company can enjoin the city from removing such a siding which has been built. (Union Railway vs. City of New York, 144 Northeast Rep., 585.)

Personal Items

W. E. Thompson Heads Metropolitan Section

Superintendent of Transportation of the Third Avenue Railway Made President of American Electric Railway Association Section

William E. Thompson, superintendent of transportation of the Third Avenue Railway, New York, N. Y., was elected president of the Metropolitan section of the American Electric Railway Association at the organization meeting on Sept. 24. At this meeting about 300 were present. Mr. Thompson was installed amid their acclaim. It was a great tribute of esteem, particularly as Mr. Thompson was selected to assume the mantle of responsibility at the organization of the section. In other words, Mr. Thompson's election was an expression in tangible form of the evidence which Shakespeare has so happily expressed as "golden opinions from all sorts of people."



W. E. Thompson

There is no need to expatiate at length on the career of Mr. Thompson. His courage has long been screwed up to the sticking point. When he had been clothed with the mantle of authority at the meeting in New York Mr. Thompson quickly showed how versatile he is, although no intimation had reached him that he would be called upon to preside.

As for his railway career, the superintendent of transportation of the Third Avenue Railway and president of the Metropolitan Section started with the Virginia Power & Light Company in 1903. Mr. Thompson had then just graduated from high school and he entered electric railway service as a platform employee. He was at the time a captain of one of the Virginia militia companies.

It was not long before he attracted the attention of the management at Richmond by his effective handling of his job and a series of promotions followed, which finally resulted in the offer to him to become superintendent of transportation for the Coney Island & Brooklyn Railroad, made by Slaughter W. Huff, then president of that company, under whom Mr. Thompson had served at Richmond. A few years after this the Coney Island & Brooklyn Railroad was taken over by the Brooklyn Rapid Transit Company and Mr. Thompson was made superintendent of the Brooklyn & North River Railroad, owned jointly by the Brooklyn Rapid Transit, the New York Railways and the Third Avenue Railway and operated over one of the bridges to carry local passengers.

Mr. Thompson remained with that company until 1919. He then became connected with the Third Avenue Railway in his present capacity, in which office he returned to service under Mr. Huff, who meantime had become president of that company.

Mr. Thompson knows the problems of the men who are under him and has met with unusual success in inducing the employees to work harmoniously with him and among themselves. He has a happy faculty of expressing himself tersely and his communications to the employees have attracted the attention of the newspapers and been reproduced by them on several occasions as feature stories, purely on the basis of their human interest appeal.

George D. Wilcox Automotive Engineer in Detroit

George D. Wilcox has joined the staff of the Department of Street Railways of Detroit and has been designated as automotive engineer. In that capacity he will have charge of the bus equipment which will soon be put in service by the department.

Mr. Wilcox, who has been identified with the automotive industry since 1903, was recently with the White organization. For nine years previous to that he was general manager of the Commerce Motor Car Company, manufacturer of trucks and buses. During the war he held the rank of major of ordnance in the motors and vehicle division and was in charge of the central district, which included eight states. He was responsible for all engineering inspection, traffic and storage in connection with ordnance contracts in his district for automotive equipment.

Samuel M. Clement, Commissioner, Resigns

Samuel M. Clement, Jr., has tendered his resignation as a member of the Pennsylvania Public Service Commission. Mr. Clement celebrated his fiftieth birthday on March 24, 1923, and on that day he intimated his intention of retiring from public life. At that time he still had seven years to serve as a member of the commission. His first job was in the Wanamaker store. After five years in this field he began the study of law at the University of Pennsylvania and was graduated in 1897. A year later he was appointed assistant district attorney, remaining in that office for three years. His political career began before that time and as a leader he was in the limelight for many years. It was on Feb. 11, 1919, that Governor Sproul named Mr. Clement a member of the Public Service Commission, succeeding in that capacity William A. Magee, formerly Mayor of Pittsburgh. Later Mr. Clement was reappointed for a full term of ten years.

Virgil R. Powell—General Manager at Dayton

Virgil R. Powell has replaced W. E. Boileau as general manager of the Peoples Railway in Dayton, Ohio. This property is a subsidiary of the American Electric Power Company, Philadelphia, Pa. The new general manager at the age of 18 was a country school teacher and followed that calling until his entrance into the electric railway field in Dayton. At the time this work was intended to be only temporary so as to provide Mr. Powell with funds to complete his classical education.

V. R. Powell

But, as often happens, fate and circumstances shaped his destiny along different lines from his preconceived notions. At once he saw the possibilities which the industry offered at that time and accordingly he remained in the service. He completed an electrical engineering course in his spare time during his early years of association as a conductor of the Peoples Railway. Since that time he has worked through the various positions of timekeeper and office manager in the track and overhead line construction department, storekeeper, inspector, assistant superintendent of transportation, superintendent and claim adjuster in the operating department.

In April, 1904, he was transferred to the Chicago & Joliet Electric Railway, another subsidiary of the American Electric Power Company. Here he served as assistant superintendent of transportation. In May, 1906, he was returned to Dayton, Ohio, to assume the position of superintendent and claim adjuster of the Peoples Railway, filling the vacancy caused by the death of

Superintendent Michael Kelly. He served in this position until his recent advancement.

He was born in Clark County, Ohio, in 1879. His early education was obtained under great stress and difficulty owing to the fact that farm returns during his early days were very meager for those who did not possess many acres of land.

Julian C. Smith Made President at Montreal

At a meeting of the directors of the Montreal Tramways & Power Company, A. E. Beauvais resigned as president and was succeeded by Julian C. Smith, vice-president and general manager of the Shawinigan Water & Power Company. Directors Fortier, Timmins and Ledieu were succeeded by J. L. Perron, Gordon McDougall and Howard Murray.

S. Roseveare has resigned as electrical engineer of the Toronto Suburban District of the Canadian National Railways.

Lawrence Palk, formerly assistant to Vice-President A. W. McLimont of the Winnipeg Electric Railway, Winnipeg, Man., has been appointed secretary of the company.

S. A. Wingard has been appointed vice-president of the Boise Street Car Company, Boise, Idaho. He will continue also in the capacity of general manager. Mr. Wingard has been in the employ of the Boise company for the last four years. He entered the service of the company as superintendent.

T. W. Brackinreid has been made manager of the Public Utilities Commission of Port Arthur, Ont., which operates the Civic Railway. In this capacity he succeeds M. M. Inglis, appointed to an office under H. H. Couzens, vice-president of the Brazilian Traction, Light & Power Company, at Rio de Janeiro. Mr. Brackinreid formerly was engineering and business representative of the Canadian General Electric Company.

Sir Thomas Tait, who recently became vice-president of the Detroit United Railway, is fast arranging his other interests so as to give the most of his time to the Detroit United Railway from now on. It is understood that he was induced to accept appointment to the company only on the understanding that he would have complete control over operations and expenditures, and the interests which induced him to take over the work anticipate that extensive economies will be effected under his régime. The new vice-president has arranged for one-man cars to be installed on the company's lines, both on the slower interurban lines and on the city systems in Ann Arbor, Pontiac, Mount Clemens and other centers now served by the company outside of its strictly interurban service. Sir Thomas is an experienced railroad man. He was at one time chairman of the Victorian Australian State Railways. This is his first venture into electric traction operation. Sir Thomas was born in Melbourne, Quebec.

H. M. Gould Advanced

Electrical Engineer Made Assistant General Manager of the Detroit Municipal Railway

H. M. Gould has been made assistant general manager Department of Street Railways, city of Detroit. The appointment of Mr. Gould to this position is a fine recognition of the fact that Mr. Gould's grasp of electric railway problems goes far beyond his technical training as an electrical engineer. To handle the host of operating problems that came with the purchase and rehabilitation of the street railways in Detroit there were needed men who could see beyond their specialist noses, so to speak.

NOT STRICTLY A TECHNICIAN

Mr. Gould soon showed his wider vision in connection with the Detroit United track rental arbitration. More recently, by helping to put the choice

©C. M. Hayes & Co., Detroit
H. M. Gould

of trackless trolley or motor-bus up to a plebiscite of the public affected, he has shown that he sets the users' preference before any personal bias as a technician.

As an electrical engineer Mr. Gould is well known for his leadership, particularly in track welding and the use of drop-forged instead of malleable-iron line fittings. In such pioneering, he is an indefatigable student and experimenter before venturing positive opinions—a characteristic that is partly inborn and partly the result of thorough study at Sheffield Scientific School, from which he was graduated in the year 1907.

IN HEAVY ELECTRIC TRACTION FOR A TIME

The first two years out of the classroom were spent by Mr. Gould in the then extra-busy electrical department of the Long Island Railroad. Next he saw the electrical side of city operation with the Metropolitan Street Railway, New York. During most of 1912, he was in the office of the city engineer, Bridgeport, Conn., where he came into contact with the Connecticut Company and its work. The Connecticut Company, which operates more than 500 miles of track, soon took him into its overhead line department, of which he was superintendent at the time of his change in August, 1920, to become electrical engineer of the Department of Street Railways, then engaged in the work of building the first of the municipal lines in that city.

Earl E. Starbard has been elected vice-president of the Interborough Rapid Transit Company, New York, and made assistant to President Frank Hedley. Mr. Starbard has long been connected with the company. He joined the organization under the presidency of the late Theodore P. Shonts and more recently has been assistant to W. L. Pepperman, vice-president and treasurer.

Herbert Mueller has been appointed cost keeper in the engineering department of the United Railways, St. Louis, Mo., to succeed Walter F. Barrett, deceased. Mr. Mueller has been with the company for nine years consecutively, beginning his service as an outside man and just completing seven years in the office.

F. K. Woodring, formerly vice-president and general manager of the Northwestern Ohio Railway & Power Company, Oak Harbor, recently acquired by the Doherty interests, has assumed new duties in Columbia, S. C., where he is associated with the General Gas & Electric Company.

A. R. Myers is the president of the new corporation known as the Erie Railways, which on Oct. 1 took over operation of all local Erie lines formerly a part of the Buffalo & Lake Erie Traction Company. Mr. Myers became associated with the old Erie property in 1906 as an electrical engineer. In 1914 he became manager of the Buffalo & Lake Erie Traction Company and has continued in that capacity ever since.

Obituary

Robert L. Corbin, former assistant superintendent of the Michigan Electric Railway, Kalamazoo, Mich., died recently, after a short illness. Mr. Corbin was born in Owen County, Kentucky, in November, 1882.

D. H. Siggins, president of the Union Traction Company, Coffeyville, Kan., and former president of the Warren Street Railway and the Warren & Jamestown Street Railway, Warren, Pa., died recently at his home in Coffeyville, Kan., after a long illness.

Alonzo C. Clarkson died recently, with a record of 16 years service on the cars of the San Diego Electric Railway, San Diego, Cal. He went to San Diego County in 1901, working in El Cajon for the San Diego & Southeastern Railway. He then moved to Pacific Beach, where he was employed by the Los Angeles & San Diego Beach Railway. Later he was employed by the San Diego & Southeastern as track foreman. In 1908 he became track foreman for the San Diego Electric Railway, with which company he remained until his death.

Manufactures and the Markets

News of and for Manufacturers—Market and Trade Conditions
A Department Open to Railways and Manufacturers
for Discussion of Manufacturing and Sales Matters

Trade Statistics Discussed

Federal Officials Asked to Study Trade Association Data—Congress May Be Urged to Legislate

In an effort to secure an official ruling to define clearly the legal rights of trade associations in collecting and distributing statistics and other activities, a committee representing the Chamber of Commerce of the United States visited Attorney-General Stone, Secretary of Commerce Hoover and members of the Federal Trade Commission in Washington on Sept. 22. The results of a referendum undertaken by the national chamber last year on trade association functions, together with supporting and explanatory data, were laid before the federal officials. No effort was made to secure an expression of opinion from the officials at this meeting, but they were asked to study the data presented them and to meet the chamber's committee again late in October, at which time it is hoped by the committee that there may be obtained an opinion which may be made public in order to settle uncertainties which now exist.

Each of eight proposals defining in rather general terms the proper scope of trade association functions laid before its membership by the Chamber of Commerce of the United States last year was given overwhelming approval, and thus these propositions became the policy of the national organization. According to Richard F. Grant of Cleveland, newly elected president of the Chamber of Commerce of the United States, it is the belief of officials of that organization that a trade association functioning along the lines laid down in the chamber's policy is clearly within the law. So much has been said recently, however, regarding the "twilight zone" of association activities in regard to the Sherman anti-trust law, and there being no clear-cut judicial decision marking the line between legal and illegal activities, conferences with the federal officials were sought in order to obtain, if possible, an official opinion which would form the basis of procedure.

If such an opinion is not obtained at the conference to be held in October, it is expected that the national chamber will proceed to draft suggested legislation which Congress will be asked to enact. President Grant of the national chamber appears to think that it will be possible to secure an opinion upon which trade associations may act. He does not believe that a test lawsuit, which has been suggested to clear the uncertainties existing regarding association work in statistics especially, is feasible, because of the time element involved, probably several years being required to secure a final decision from the Supreme Court, and also because he does not believe that it would be easy to induce an association to offer itself for such a test, owing to the apprehension of individual members that they might thereby come into personal conflict with the Department of Justice.

Staten Island Substation Order to Westinghouse Company

The Westinghouse Electric & Manufacturing Company has received orders totaling approximately $1,000,000 for apparatus to be used in connection with the $10,000,000 improvements which the Baltimore & Ohio Railroad is carrying out on Staten Island in electrifying the Tottenville and South Beach branches of its subsidiary, the Staten Island Rapid Transit Company.

The contracts cover five automatic substations with supervisory control for the Staten Island Rapid Transit Company, and high-voltage equipment for the Staten Island Edison Corporation, which will supply the power for operating the railways.

Four of these will be entirely automatic substations and the fifth will be the central control station for the whole system. Each of four of the substations will contain two 1,000-kw. rotary converters with the necessary auxiliary apparatus, and the fifth will contain a single converter of the same size.

Yellow Coach Awarded Fifty Detroit Buses

The Board of Street Railway Commissioners of Detroit has recommended the purchase of 50 totally inclosed double-deck buses from the Yellow Coach Manufacturing Company. These will be operated in the city as auxiliaries to the present rail lines. The action taken is the result of careful studies which have been under way for some time by the Department of Street Railways to determine the possibilities of the bus for improvement of the transportation facilities in the city.

Subsequent to the receipt of bids from four manufacturers, as published in the Sept. 20 issue of the ELECTRIC RAILWAY JOURNAL, changes were made in the original specifications and new bids were requested. These were opened on Sept. 27 and included the following quotations per bus in lots of 50:

Yellow Coach Manufacturing Company, $11,250; Fageol Motor Company, $11,656; Gotfredson Truck Corporation, 10,500; Garford Truck Company, $10,500, and the Standard Motor Truck Company, $9,500.

Although the routes for the new vehicles have not been definitely selected, a complete survey of the entire situation has been made. The double-deck inclosed type of bus described elsewhere in this issue was selected as most suitable for the service contemplated.

ELECTRIC RAILWAY MATERIAL PRICES—OCT. 1, 1924

Metals—New York

Copper, electrolytic, cents per lb.	12.875
Lead, cents per lb.	8.00
Nickel, cents per lb.	29.00
Zinc, cents per lb.	6.50
Tin, Straits, cents per lb.	48.50
Aluminum, 98 to 99 per cent, cents per lb.	27.00
Babbitt metal, warehouse, cents per lb.:	
Fair grade	60.00
Commercial	28.00

Bituminous Coal

Smokeless mine run, f.o.b vessel, Hampton Roads	$4.275
Somerset mine run, Boston	2.125
Pittsburgh mine run, Pittsburgh	1.875
Franklin, Ill., screenings, Chicago	1.375
Central, Ill., screenings, Chicago	1.175
Kansas screenings, Kansas City	2.35

Track Materials—Pittsburgh

Standard Bessemer steel rails, gross ton	$43.00
Standard open hearth rails, gross ton	43.00
Railroad spikes, drive, Pittsburgh base, cents per lb.	2.80
Tie plates (flat type), cents per lb.	2.45
Angle bars, cents per lb.	2.75
Rail bolts and nuts, Pittsburgh base, cents per lb.	3.75
Steel bars, cents per lb.	2.00
Ties, white oak, Chicago, 6 in. x 8 in. x 8½ ft.	$1.45

Hardware—Pittsburgh

Wire nails, base per keg	2.75
Sheet iron (28 gage), cents per lb.	3.50
Sheet iron, galvanized (28 gage), cents per lb.	4.60
Galvanized barbed wire, cents per lb.	3.45
Galvanized wire, ordinary, cents per lb.	2.50

Waste—New York

Waste, wool, cents per lb.	15
Waste, cotton (100 lb. bale), cents per lb.:	
White	12–18
Colored	9–14

Paints, Putty and Glass—New York

Linseed oil (5 bbl. lots), per gal.	$1.01
White lead (100 lb. keg), cents per lb.	11.75
Turpentine (bbl. lots), per gal.	$0.87
Car window glass (single strength), first three brackets, A quality, discount*	84 0%
Car window glass (single strength), first three brackets, B quality, discount*	86.0%
Car window glass (double strength) all sizes, A quality, discount*	85.0%
Putty, 100 lb. tins, cents per lb.	4–6

*These prices are f.o.b. works, boxing charges extra.

Wire—New York

Copper wire base, cents per lb.	15.125
Rubber-covered wire, No. 14, per 1,000 ft.	$6.55
Weatherproof wire base, cents per lb.	18.25

Paving Materials

Paving stone, granite, 4x8x4, f.o.b. Chicago, dressed, per sq.yd.	$3.60
Common, per sq.yd.	2.95
Wood block paving 3½, 16 treatment, N. Y., per sq.yd.	2.67
Paving brick 3½x8½x4, N. Y., per 1,000 in carload lots f.o.b.	$51.00
Crushed stone, ¾-in., carload lots, N. Y., per cu.yd.	1.85
Cement, Chicago consumers' net prices, without bags	2.20
Gravel, ¾-in., cu.yd., f.o.b. N. Y.	1.75
Sand, cu.yd., N. Y.	1.00

Old Metals—New York and Chicago

Heavy copper, cents per lb.	10.375
Light copper, cents per lb.	8.875
Heavy brass, cents per lb.	6.25
Zinc, old scrap, cents per lb.	3.875
Light brass, cents per lb.	5.125
Lead, cents per lb. (heavy)	6.875
Steel car axles, Chicago, net ton	$18.75
Cast iron car wheels, Chicago, gross ton	18.25
Rails (short), Chicago, gross ton	18.25
Rails (relaying), Chicago, gross ton	26.50
Machine turnings, Chicago, gross ton	10.25

Cost of Selling Industrial Products Topic of Chicago Meeting

To bring together the best experience of manufacturers who sell to industry, the National Industrial Advertisers' Association will hold a two-day meeting in Chicago, Oct. 13 and 14.

Among the papers thus far scheduled are: "Problems in Technical Research," by P. C. Gunion, Hyatt Roller Bearing Company; "Relations Between Advertising and Sales Department," by Julius S. Holl, Link Belt Company; "Building a Large Industrial Business with Advertising," by R. C. Beadle, Combustion Engineering Corporation; "What Our Company Is Doing in Intensive Sales Work," a group of five-minute talks; "What Manufacturers Can Do Through United Effort to Secure Better Industrial Advertising," by P. L. Thomson, Western Electric Company.

The meetings will be held at the Edgewater Beach Hotel, Chicago. Further information can be secured by addressing H. L. Delander, acting secretary National Industrial Advertisers' Association, 836 South Michigan Avenue.

Rolling Stock

United Railways & Electric Company, Baltimore, Md., is giving a trial to a new type of articulated car which has been constructed in the company's shops. The car is the result of long study on the part of officials of the company. If it proves successful it probably will be used to replace trailers on many of the lines in the city. The car was built from two standard-sized cars joined by a truck with a flexible vestibule connecting them.

Binghamton Railway, Binghamton, N. Y., has purchased one 25-passenger Mack bus of the street car type.

Toledo & Indiana Railroad, Toledo, Ohio, has asked the Ohio Public Utilities Commission for authority to issue $94,337 in equipment securities to pay for four new cars of light suburban type to operate between Toledo and Bryan, Ohio.

Jacksonville Traction Company, Jacksonville, Fla., is remodeling 30 of its double-truck cars, 15 of which have been turned out by the shop forces since the work was started the latter part of last year. Of this number 8 are of the one-man type and 7 are of the two-man type. In addition to the 8 one-man cars in operation 6 more cars of this type are in different stages of construction in the shops of the company. When the work is completed the equipment of the company will include 30 rebuilt cars and 53 of the Birney type of safety cars.

Public Service Railway, Newark, N. J., is converting 260 cars into the one-man type. They are being changed at the Plank Road shops of the company.

Interborough Rapid Transit Company, New York, N. Y., has recently received bids for 150 motor cars, similar in type to the 100 cars ordered some time ago on which delivery is now being made. The bids on the new lot of cars are under consideration and it is expected that announcement of the award of the contract will be made very soon.

Union Traction Company of Indiana, Anderson, Ind., has purchased a bus for service at Fort Benjamin Harrison, as a feeder to regular interurban cars. The company contemplates the purchase of other buses to feed its terminal points.

Track and Line

Alabama Power Company, Gadsden, Ala., is replacing its old tracks with International twin steel crossties and 85-lb. rails.

Peoples Railway, Dayton, Ohio, is reconstructing 2 miles of track on East First Street in Dayton with Dayton mechanical ties.

Illinois Traction System, Peoria, Ill., will make improvements of a temporary nature to the McKinley Bridge, between St. Louis, Mo., and Venice, Ill., at a cost of $100,000. The temporary improvements will result in the removal of the narrow south side roadway, while the car tracks in the center will be boarded over to permit their use by automobiles and wagons. The changes will serve until the bridge can be enlarged permanently.

Wheeling Traction Company, Wheeling, W. Va., will lay new ties and rails on Main Street. All of the old rails over the entire system are being replaced with new 90-lb. rails. The contract has been let for this work to Cass & Otto.

City Railway, Dayton, Ohio, is reconstructing 4 miles of track on West Fifth Street in Dayton with Dayton mechanical ties.

Key System Transit Company, Oakland, Cal., will soon install a double track branch-off from Oxford Street into Hearst Avenue in Berkeley. The branch-off will be of the Key System standard 7-in. girder rail construction and will cost $8,000.

Northern Texas Traction Company, Fort Worth, Tex., has been petitioned by the city Park Board to extend its Rosen Heights line about 3 miles west to the new proposed bathing beach for the city. The petition has been referred to the directors for discussion.

Miami Beach Electric Company, Miami Beach, Fla., will construct nearly 4 miles of track in Miami Beach, extending to La Gorce Island. The improvement will represent an expenditure of $170,000.

Manhattan & Queens Traction Company, New York, N. Y., will repair the tracks along Queens Boulevard. The contract for the work has been placed with Reynolds & Driscoll.

Virginia Railway & Power Company, Richmond, Va., has been authorized by its directors to spend $274,352 in necessary improvements and extensions. Nearly one-half of the amount will be spent in Richmond. The construction program includes a power station in South Richmond of 1,000 kw. capacity and the erection of a substation.

Trade Notes

Automatic Reclosing Circuit Breaker Company, Columbus, Ohio, has brought suit in the United States District Court for the Western District of Pennsylvania against the Westinghouse Electric & Manufacturing Company. In its bill of complaint, the Automatic Reclosing Circuit Breaker Company alleges that the defendant has infringed basic claims of its patents 13856, 1312454, 1363814 by wrongfully and without license manufacturing, using and selling devices embodying the inventions shown in the said patents relating to automatic reclosing circuit breakers. It asks the court to enjoin the Westinghouse Electric & Manufacturing Company from further infringement.

The National Railway Appliance Company, New York, N. Y., and the Hegeman-Castle Corporation, Chicago, have been appointed general sales agents of the Walter Tractor Snow-Plow, which is standard equipment of the Fifth Avenue Coach Company, New York; Detroit Motor Bus Company, Chicago Motor Coach Company and of companies in other cities where bus systems are being operated.

Economy Fuse & Manufacturing Company, Chicago, Ill., announced that on Sept. 8 its Minneapolis district sales office was removed to 1008 Marquette Avenue, Minneapolis, Minn.

New Advertising Literature

Brass Tacks.—Stealing a little of General Dawes' thunder, the Bridgeport Brass Company is distributing a small emblem in the form of a brass tack. Those who wear the emblem believe, at least in theory, in getting down to business—now. This tack is made from Bridgeport "electric furnace brass" and has a brass pin by which it may be fastened to the clothing.

Detroit Electric Furnace Company, Detroit, Mich., has had issued a catalog describing in detail the advantages, performances and results obtained with its electric brass furnaces in the brass melting field. The outstanding features of economy, mechanical control and speed of production are all clearly enumerated and described. This booklet is known as the "Speedier Production—Better Brass."

International Motor Company, New York, N. Y., has issued catalog No. 91, containing 56 pages of detailed descriptions and specifications of the latest type of Mack buses. Many illustrations showing characteristics and features of the Mack buses are included in the catalog. The company will supply it upon receipt of request.

Celite Products Company, New York, N. Y., has issued a 30-page pamphlet on economic value of admixtures, describing the use of celite as an admixture in concrete. It is a reprint of two papers included in the copyrighted proceedings Vol. 20, 1924, of the American Concrete Institute.